Manual

Simrad MS50

Satellite Terminal

SIMRAD
A KONGSBERG Company

RADIATION WARNING

RADIO FREQUENCY RADIATION
HAZARD - KEEP CLEAR
1 METRE MINIMUM

High levels of radio frequency radiation are considered health hazardous. Although no single value of "safe radiation level" has been agreed upon by all countries, the American National Standards Institute (ANSI/LEEE C95.1-1992) recommends that people should not be exposed to radiation stronger than 1 milliwatt per square centimetre at the frequencies used in the SIMRAD MS50 terminal. Accordingly, the operator of the terminal should ensure that the area extending 1 metre from the front of the antenna be kept clear of personnel when the terminal is transmitting.

OBTAINING LICENSING FOR INMARSAT TERMINALS

Under rights given under ITU Radio Regulations, local telecommunications administrations establish and enforce national rules and regulations governing types of emissions, power levels, and other parameters that effect the purity of signal, which may be radiated in the various frequency bands of the radio spectrum.

To legally operate an Inmarsat terminal, it is necessary to obtain permission from the local telecommunications regulatory authorities of the country you are operating within. Using your terminal in any country without permission causes you to run the risk of confiscation of the terminal or legal action from local authorities. Normal practice for taking telecommunications into another country is to apply for a license before travel. If a license has not been obtained before travel, the equipment may be put into storage by local authorities until such time as a license is obtained.

All specifications are subject to change without notice.

Chapter 1. Introduction
Equipment 1.1
System description 1.6
Chapter 2. Operation
Call from Display Handset 2.1
Telephone features 2.10
Chapter 3. Telefax Service
Setting up 3.1
Using telefax with Simrad MS50 ..... 3.2
Chapter 4. Data Service
Setting up 4.1
Starting from PC 4.3
Sending NIMS message 4.6
Receiving NIMS message 4.8
Functions 4.10
Last number list 4.12
Phone book 4.13
Key lock 4.15
Default Net service provider & terrestrial network 4.16
User access 4.17
Data/printer port setup 4.20
Phone setup 4.23
Setting date and time 4.23
Setting key lock 4.24
Language setup 4.25
Language reset 4.26
Mailbox access numbers 4.27
Call charge setup 4.28
Traffic log 4.29
Precharge 4.32
Precharge on SIM card 4.38
Advanced functions:
Access control 4.40
Restricted dialing 4.41
Restricted dialing setup 4.43
Access code 4.44
Access code setup 4.45
Restricted SIM usage 4.46
Checking SIM restrictions 4.47
Setting SIM restrictions 4.48
Satellite setup 4.49
Net service provider and terrestrial network 4.49
S/A operator and terrestrial network 4.49
Configuration 4.50
Port configuration 4.50
Net service providers 4.51
Power conservation 4.52
Set diagnostics 4.52
Storing of Preferred/Allowed Net service provider and Stand Alone operator on the SIM Card 4.53
Charge tone 4.55
Information available 4.56
IMN numbers 4.56
Misc. version ID information 4.57
Oscillator compensation 4.57
Network status 4.57
Installation 4.58
Paid functions 4.58
Phone name setup 4.58
Chapter 5. Appendices / Index
Appendix A
Telephone country codes A-1
Service address codes A-5
Appendix B
Installation of Simrad MS50 ..... B-1
Installation of Marine Antenna B-4
Installation of Voyager Antenna B-10
Mounting of Portable Antenna B-15
Installation of Provident Antenna B-18
Optional antenna cable B-22
Appendix C
AT commands C-1
DTE interface C-17
Appendix D
Secure voice (option) D-1
Aero functions (option) D-2
Appendix E
List of terms E-1
Appendix F
Troubleshooting F-1

1. Introduction

2. Operation

3. Telefax Service

4. Data Service

5. Appendices

Equipment 1.1
System description 1.6

The design and specifications of the
equipment may be changed without notice.

General

The Simrad MS50 terminal provides access to the international dial-up telephone, facsimile and data networks via the Inmarsat 3 Spot Beam satellite system.

The terminal comprises:

- **Simrad MS50**
- **Antenna Unit** including RF transceiver (option).
  See next page for alternatives.
- **Display Handset** or **telephone** (option)

A single coax cable links Simrad MS50 and Antenna Unit.

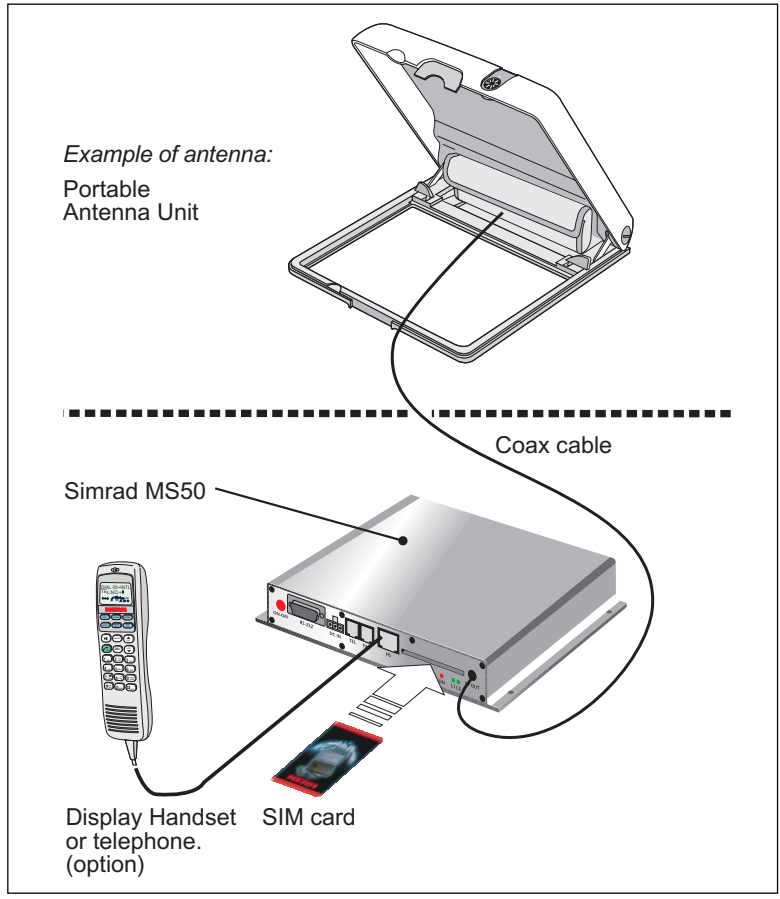


Figure 1.1 Simrad MS50 w/Portable Antenna.

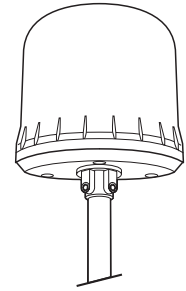
Equipment cont'd

Antenna Unit (option)

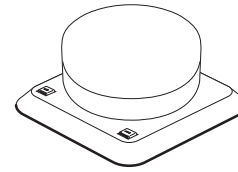
The following types of Antenna Units are available for use with the Simrad MS50 terminal:

Tracking antenna:

- **Marine** antenna designed for use on marine crafts, leisure yachts and work boats alike.

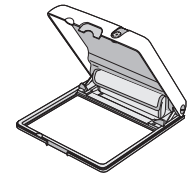


- **Voyager** antenna designed for use on vehicles, trains or riverboats.

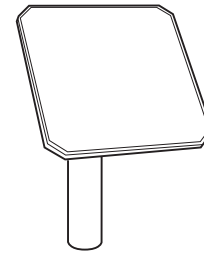


Fixed antenna:

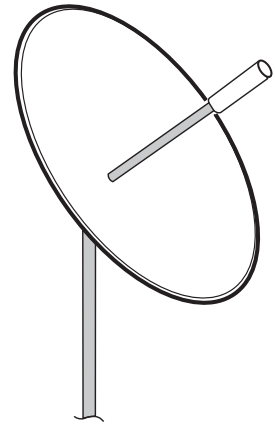
- **Portable** antenna designed for semi- or fixed mounting on a flat surface,
or tripod.



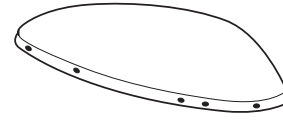
- **Provident** designed to provide telecommunication services for remote villages, farms, businesses, construction sites etc.



Equipment cont'd



• **Expander**, which allows simultanous operation of up to six WorldPhone Telephone Units through a one meter parabolic dish antenna.
See separate information.



• **Aero**, intended for use on the small to medium size aircraft.
See separate information.

Note!
It is advisable to turn off the equipment prior to switching antenna.

Equipment cont'd

Display handset (option)

Apart from normal voice communication, the Display Handset offers the following functions:

- PIN protection (Personal Id Number)
- Phone book
- Manual selection of satellite Ocean Region
- Selection of default Net service provider

See chapter 2. Operation

Telephone (option)

Simrad MS50 may be delivered with an ordinary DTMF telephone for basic voice communication.
A cordless base station or PABX can be delivered as option.

SIM card

The SIM card (Subscriber Identity Module) carries subscription information from your Inmarsat Service Provider (ISP) or Net service provider on an integrated circuit. The Simrad MS50 used with the SIM card assumes the identity of the SIM card.

The SIM card has its own set of numbers on which the user can be contacted irrespective of the Simrad MS50 used. All outgoing calls will be billed to the owner of the SIM card.

The SIM card is protected by means of a lock code. When buying a SIM card you will receive a Personal Identification Number (PIN) that will contain up to 8 digits. Contact your dealer if you do not have your PIN code.

If the PIN code entered does not match the PIN code on the SIM card, operation with that particular SIM card will lock-up after three failed attempts.

You must then use the SIM un-block code (PUK code) provided by your ISP to un-lock the card. Contact your dealer if you do not have the PUK code.
Note! When using the PUK, the SIM PIN is set to 1 2 3 4.

For procedures on how to change or disable the PIN code, *see **"User access"** in chapter 4. Data service.*

The SIM card can store miscellaneous information, f.ex.:

- PIN code (Personal Identification Number)
- Last number list (previously called numbers)
- Phone book
- Allowed and preferred Net service providers

Note! When using SIM card, the accessibility of the functions described in this manual will depend on the card supplier.

Telefax service

The **Telefax** facility supports Group 3 fax transmission at a rate of 2.4 Kbps. The telefax is assigned a separate incoming call number. *see chapter 3. Telefax service*.

Data service

A PC can be connected for individual setup and operation of all functions of Simrad MS50, *see chapter 4. Data Service.*

The PC also allows the use of the built in **Data Transmission Service** without the aid of a modem or data card, *see chapter 4. Data service.*

The Asynchronous Data (ASD) system provides 2.4 Kbps data transfer between two Simrad MS50s, or between a Simrad MS50 and the fixed international network.

The Data Transmission Service is assigned a separate incoming call number.

Mail service

With PC connected to Simrad MS50, the Internet Messages Service (**NIMS**) allows a message of maximum 1024 characters to be sent *to* the Simrad MS50 from a website, or *from* the Simrad MS50 to an e-mail address or another Simrad MS50.

NIMS messages are addressed to a response NIMS IMN number. *See also **appendix E**.*

System description

Inmarsat Mini-M system

Inmarsat Mini-M is a satellite communications system that provides highly-reliable telephone, data and facsimile communication to and from mobile subscribers anywhere within the worldwide coverage area of the Inmarsat 3 Spot Beam system, *see map on next page*.

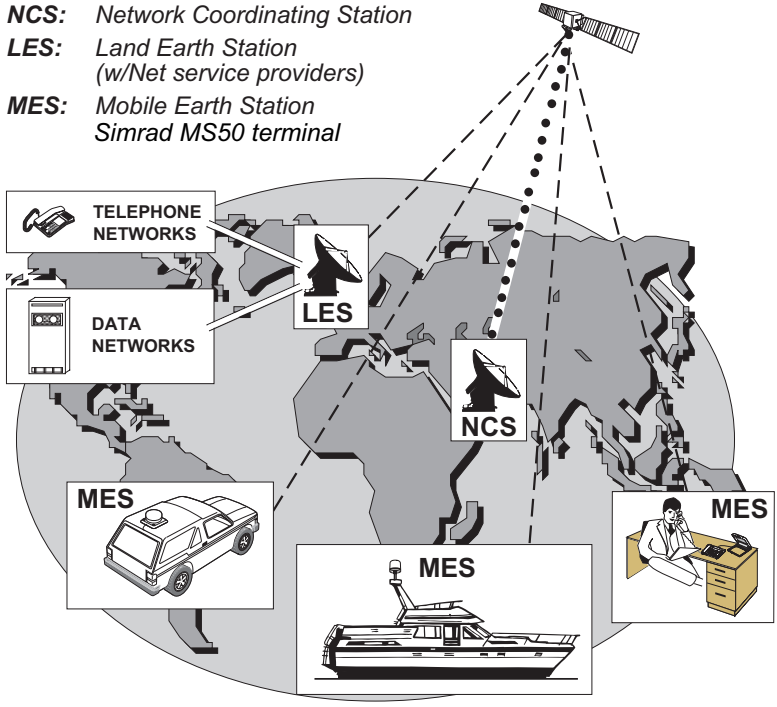


Figure 1.2 Overwiew of the Inmarsat Mini-M system.

System description cont'd

System satellites

The satellites are positioned in a geostationary orbit above the equator at approximately 35700 km altitude.
See figure 1.3.

In geostationary orbit, each satellite moves at the same rate as the earth, and so remains in the same relative position to the earth.

The satellites cover approximately 1/4 of the earth each, called Ocean Regions:

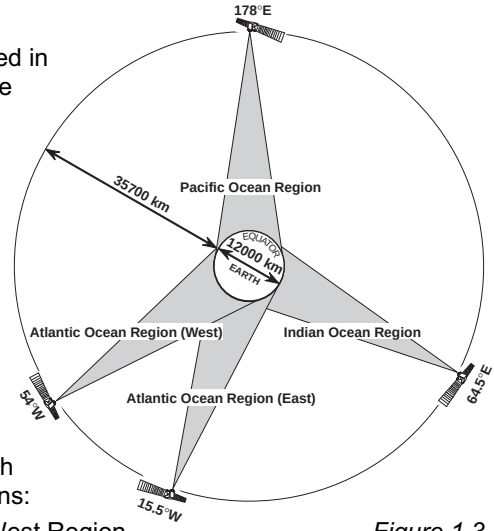
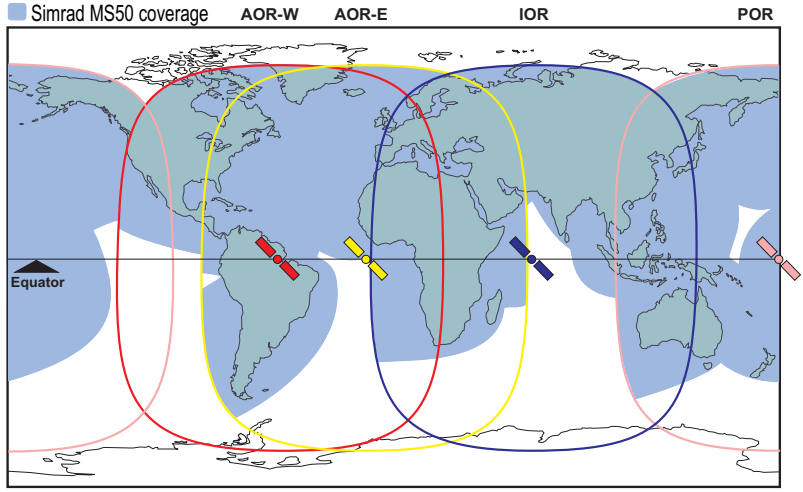


Figure 1.3
Satellite positions

AOR-W Atlantic Ocean West Region
AOR-E Atlantic Ocean East Region
IOR Indian Ocean Region
POR Pacific Ocean Region

The coverage area of the satellites for Simrad MS50 (Mini-M) is shown on the map below. Communication is possible in areas marked with grey.



System description cont'd

Simrad MS50 communication

The Simrad MS50 terminal provides direct telephony, telefax, NIMS and data connection to international public networks via the Inmarsat 3 Spot Beam satellite system.

For basic operation Simrad MS50 must include:

- Antenna Unit, and
- Display Handset or telephone.

For added functionality:

- PC for control and settings.
- Telefax

Only a thin coaxial cable connects Simrad MS50 to the Antenna Unit.

Net service provider

The Net service provider issues your user licence and IMN (Inmarsat Mobile Number) numbers. It is also responsible for the billing of calls.

Calls from Mobiles

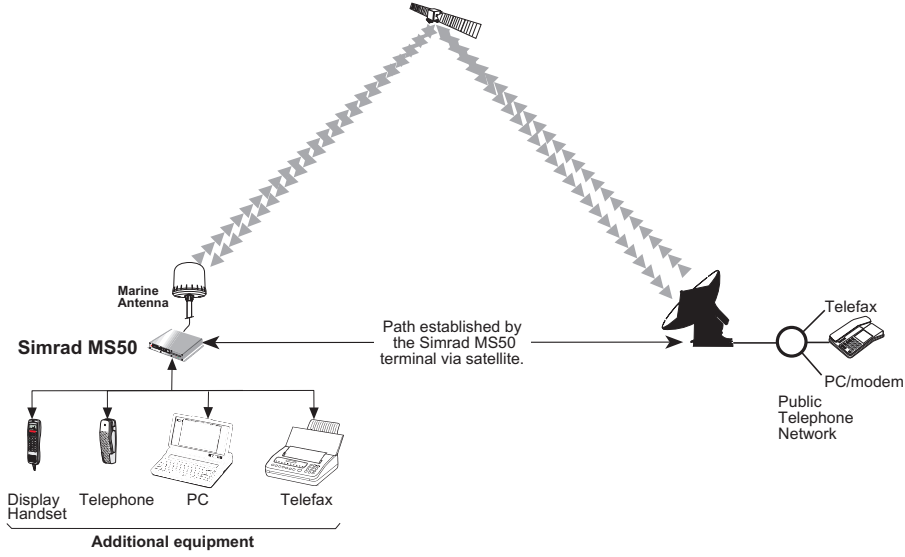


Figure 1.4 Communication path.

To make an outgoing call, you use a standard international telephone number with the 00 prefix. The mobile automatically includes information to identify the MES and the particular port that originates the call.

Simrad MS50 has four ports configured for: display handset, telephone, telefax and data.
The LES uses the port identifying information (OI) for billing purposes. The mobile transmits the dialing information on a channel specially assigned by the NCS, to the LES, which also has been instructed to tune to the same channel. LES routes the call over the public telecommunications networks to the intended destination. When the called party responds, the call proceeds.

Calls to Mobiles

The Simrad MS50 terminal receives incoming calls via the IMN phone numbers. IMN numbers are assigned to the following ports:

- *Display Handset (HS port)*
- *Telephone (TEL port)*
- *Data service (DATA port)*
- *Telefax service (FAX port)*
- *NIMS service*

Calls are made as ordinary international (Satellite) calls where each Ocean Region has an international country code. If an area is covered by more than one satellite, it is necessary that the caller knows which satellite (Ocean Region) the mobile is tuned to, or if not known try the other satellite(s).

The international codes to the four Ocean Regions are as follows:

- *Atlantic Ocean East Region: 871*
- *Pacific Ocean Region: 872*
- *Indian Ocean Region: 873*
- *Atlantic Ocean West Region: 874*

Note! Some Net service providers support the common Ocean Region access no. ***870****, which connects the call to the dialed Simrad MS50 regardless of the Ocean Region the user currently communicates through.*

Services

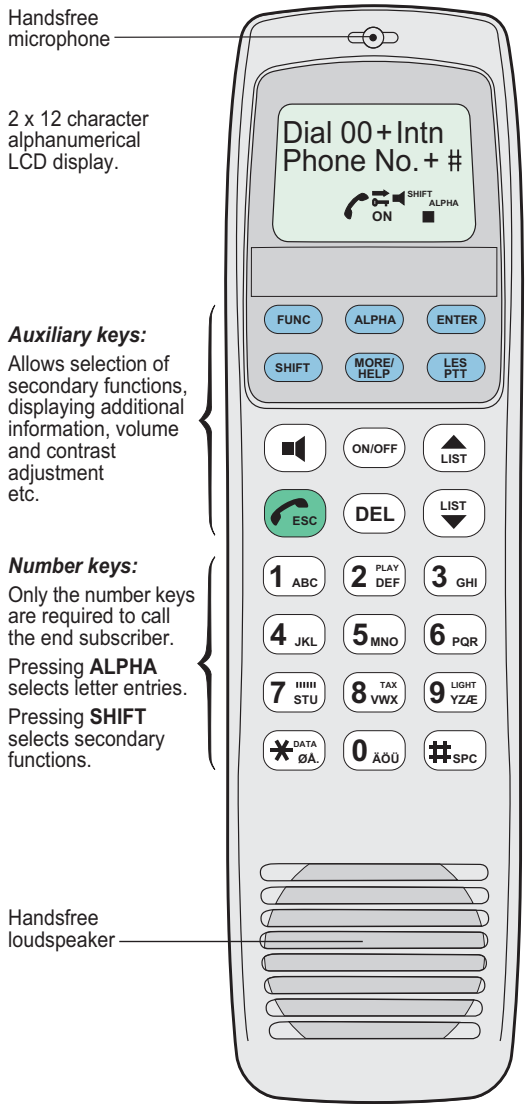
- Telephone calls – basic telephony services.
- Telefax – CCITT Group 3 facsimile services, 2.4 kbps.
- Data communication – Hayes compatible 2.4 kbps data service.
- Mail service – NIMS

Call from Display Handset 2.1
Telephone features 2.10

The design and specifications of the
equipment may be changed without notice.

Display and keys

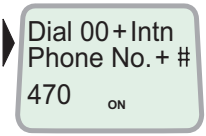
The Display Handset is used for telephone calls and basic functions. Additional control of functions and other facilities must be done from a PC connected to Simrad MS50, *see chapter 4.* ***Data Service.***



Call from Display Handset cont'd

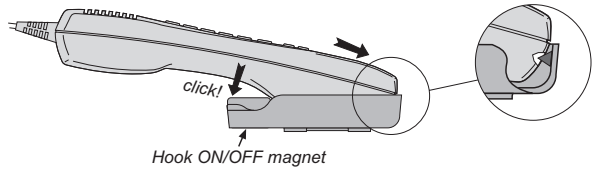
Idle mode

The following message appears in the display when in **IDLE** mode:

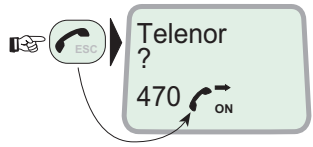


Hook ON/OFF

The Display Handset is secured in a desk- or wall-mounted bracket:



A magnet toggles the internal hook switch. The switch can also be toggled with the combined HOOK ON/OFF and ESCAPE key:

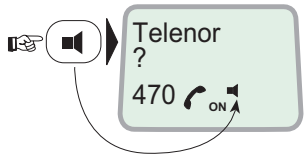


Beeps in the handset

Before contact is established with the selected satellite beeps indicate attempts.

Loudspeaker

When off-hook the loudspeaker key toggles the Display Handset loudspeaker ON and OFF:



Volume control

The received volume in the Display Handset may be adjusted during a call:

- Reducing the volume: ☞ LIST ▼
- Increasing the volume: ☞ ▲ LIST

The volume is reset when clearing the call.

Light in display and keys

- Turns on during activity (default)
- For permanent light, press ☞ SHIFT 9 LIGHT YZÆ once.
  Repeat strokes to turn light off, and repeat again to revert to "activity" mode of illumination.

Incoming call indicator

■ flashes when receiving a **call** to the Display Handset.
The indicator turns off when the call is established.

PIN code

The user is prompted for the 4-8 digit Personal Identification Number each time Simrad MS50 is switched on:

- SIM PIN? (with SIM card).
- Phone PIN? (without SIM card).

*Note! The PIN code may also be entered from the PC, if connected, see "**Starting from PC**" in chapter 4. Data Service.*

*Be aware that the PIN protection may have been disabled, see "**User access**" in the same chapter.*

Call from Display Handset cont'd

Switching on

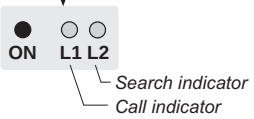
1 If Marine or Voyager Antenna Unit is installed, switch on Antenna Power Supply.

2 Insert the SIM card (if SIM operated):

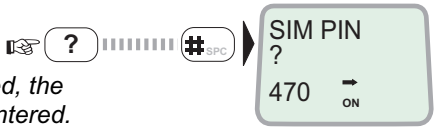
3 Press and hold the ON/OFF push button (ON/OFF) for 2 secs.

"**ON**" should appear in the display.

Alternatively, press the ON-OFF button on Simrad MS50. The red **ON** indicator should light up:



4 Enter the SIM PIN code:



If no SIM card is inserted, the "Phone PIN" must be entered.

Satellite searching

5 Turn on the loudspeaker: (). Adjust volume: (LIST) (LIST). During the satellite search, beep tones will be heard in the Display Handset (the green indicator L2 will flash in step with the tones):

- - - - - - - - slow intermittent tones when searching for **any satellite**.

- - - - - - - - - - - - - - - - rapid intermittent tones when searching for a **specific satellite** *(faster when searching for a single satellite).*

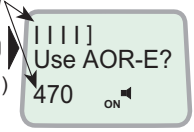
6 When receiving a satellite signal, a short tone will sound. If it is an Inmarsat satellite, a continuous tone will sound with varying frequency. When closing in on a satellite, the tone should increase in frequency.

Note! ***Searching all satellites*** *is the normal mode of operation.*

Signal strength indication

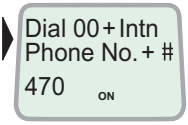
7 Accept the satellite, e.g. AOR-E:

(or ENTER)



Press ESC once to restart the search, twice to choose another region, see next page.

8 Key in the international call prefix 00, followed by country code and subscriber number (max. 22 digits):



0 0 4 7 → 6 7 2 4 4 7 0 0

*For explanation of call numbers and list of telephone country codes, see **appendix A**.*

To use short number, f.ex. no 8: 2 3 8 #

*See **"Phone book"** in chapter 4. Data Service.*

To retransmit last number: 0 #

*See **"Last number list"** in chapter 4. Data Service.*

*See also **"Telephone features"** later in this chapter.*

9 Initiate the call:

(or ENTER)

Slow beeps are heard during call setup.
Ringing tone is heard until answer.

Pressing FUNC displays the duration of the call as it proceeds:

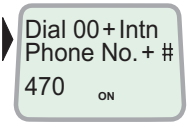
Hours : minutes : seconds

FUNC

The call indicator L1 lights.

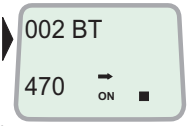
10 Clear the call when finished:

ESC



Call through selected Net service provider:

11 Enter the reference code, e.g. BT: 2 *



Continue from step 1.

Note! Availability of this function depends on provider.

Call from Display Handset cont'd

Satellite Ocean Region

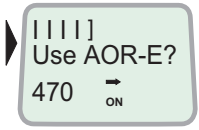
Some geographic locations allow contact with more than one Ocean Region satellite. It is recommended to choose an Ocean Region providing good signal quality and cost-effective communication.
Use the **Satellite Coverage Map** in chapter 1. Introduction to select the Ocean Region at your location:

AOR-W	Atlantic Ocean Region West:	(**1**)
AOR–E	Atlantic Ocean Region East:	(**2**)
POR	Pacific Ocean Region:	(**3**)
IOR	Indian Ocean Region:	(**4**)

***To select, starting from idle**:*

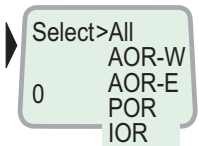
1 Enter Ocean Region select mode: SHIFT, 7 STU

(also entered when pressing ESC twice during satellite search, see previous page.)



2 Enter list:

and scroll down to wanted region: FUNC, LIST, ENTER



Turn on loudspeaker to hear search tone, and adjust volume: LIST, LIST

Pressing ESC stops the search.

3 Accept the satellite, e.g. AOR-E: SPC (or ENTER)

Note !
The antenna must be connected when selecting Ocean Region.

Default Net service provider

The default Inmarsat Net service provider (ISP) for a satellite (Ocean Region) is automatically used if the user does not select another one when making a call.

When using SIM card, selection of an ISP is restricted to one of the allowed Net service providers!

When the Restricted Net function is enabled, and with some SIM cards, selection of default Net service provider is not possible.

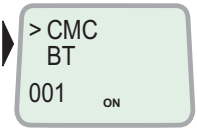
*See also "**Selecting default Net service provider**" in chapter 4. Data Service.*

***To select**:*

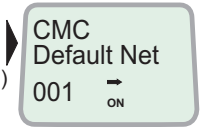
1 Open the function **MENU**:

2 Display the current default Net:

3 Scroll down through list to wanted Net service provider:



4 Store the chosen Net service provider as default:



Revert to idle:

Call from Display Handset cont'd

IMN numbers

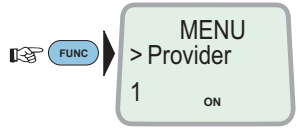
This function lists the IMN numbers assigned to Simrad MS50.

Editing of the numbers on the telephone or SIM card respectively can only be done from the PC (when connected).

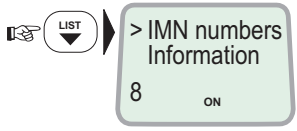
See chapter 4. Data Service.

Readout:

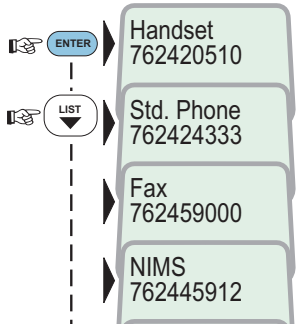
1 Open the function **MENU**:



2 Scroll down to **IMN numbers**:



3 Enter list and scroll down to display the assigned IMN numbers:



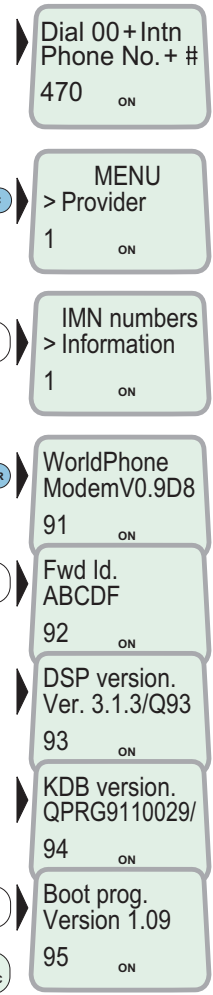
Revert to idle:

Information

The following information is provided:

- Simrad MS50 version number.
- Forward ID number which identifies your particular Simrad MS50 and SIM card if installed.
- System version numbers of the internal software programs.

***Readout**:*



1 Open the function **MENU**:

2 Scroll down to **Information**:

3 Enter list and scroll down to display the information available:

Revert to idle:

Telephone features

General

Control of functions and other facilities must be done from a PC connected to Simrad MS50, *see chapter 4.* ***Data Service.***

Call through default Net service provider

0 0 4 7 6 7 2 4 4 7 0 0 # routes the call via the default Net service provider for the satellite (Ocean Region) you are using.

Call through selected Net service provider

4 * 0 0 4 7 6 7 2 4 4 7 0 0 # routes the call via the Net service provider Telenor (4) in Norway.

Last number redialing

0 # retransmits the last number.

Last number redialing through selected Net service provider

4 * 0 # retransmits the last number via the selected Net service provider (Telenor=4).

Short number dialing (prefix 23)

2 3 1 0 5 # fetches and sends the telephone number stored on the SIM card under short number 105.

Short number dialing (prefix 23) through selected Net service provider

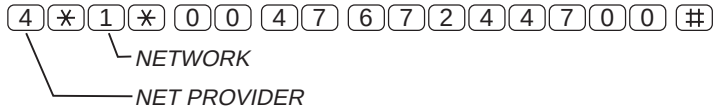
4 * 2 3 1 0 5 # fetches and sends the telephone number stored under short number 105 via the selected Net service provider (Telenor=4).

Call through selected Net service provider and terrestrial network

Dialing via a terrestrial network is only possible using a selected Net service provider.

The number may be in the range 0 to 127.

Example of a call through selected Net, e.g. Telenor, and terrestrial network 1:



Service calls

Special information services are accessible with 2-digit service address code. *See* ***appendix A****.*

Note! Not all Net service providers offer every service listed.

Example of obtaining assistance from the International Operator:

Dial: 1 1 #

To call Simrad MS50

Dial the international prefix (normally 00) followed by
87X IMN number, f.ex. 00 **871** 762420510.

Depends on which satellite Simrad MS50 is currently using:

- **1** – **AOR-E** (Atlantic Ocean Region East)
- **2** – **POR** (Pacific Ocean Region)
- **3** – **IOR** (Indian Ocean Region)
- **4** – **AOR-W** (Atlantic Ocean Region West)

Note! Some Net service providers support the common Ocean Region access no. ***870****, which connects the call to the dialed Simrad MS50 regardless of the Ocean Region the user currently communicates through.*

Setting up 3.1
Using telefax with Simrad MS50 ..... 3.2

The design and specifications of the
equipment may be changed without notice.

General

The Simrad MS50 terminal provides access to a telefax service at a transmisson rate of 2.4 Kbps.

Limitations

Simrad MS50 is fully compatible with the world's leading telefax machines and telefax software standards. However, transmission may not be possible through some of the telefax machines available on the market. Please check with your Net service provider before purchasing a telefax for use with Simrad MS50.

Installation

Connect the telefax cable to the **FAX** port on the Simrad MS50 connector panel.
For wiring details, see ***appendix B – Installation of Simrad MS50****.*

Verify that the FAX port is configured for telefax service, see ***"Advanced functions: Port configuration"*** *in chapter 4. Data Service.*

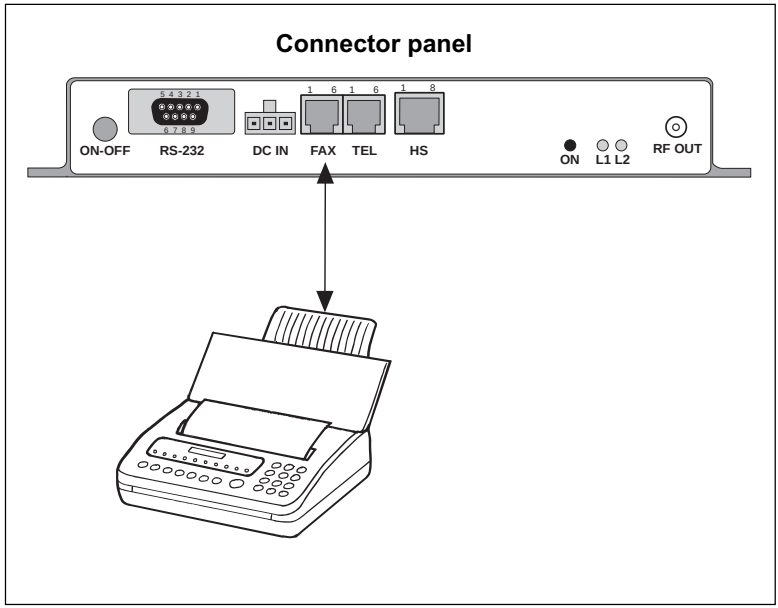


Figure 3.1 Telefax communication with Simrad MS50.

Transmission

Telefax calls made by Simrad MS50 are *telefax only.* Any telephone handset connected to the telefax machine is for dialing purposes only.

To send a fax, use the same dialing sequence as when making a call, either through the default Net or a selected one.
See chapter 2. Operation.

> *Note! Enter* [#] *as the last digit before starting transmission.*

Telefax transmissions normally take 1.5 minutes per standard text page using standard resolution. Using superfine or halftone resolution will double the transmission time. To save time, avoid using a separate cover page.

If a call failure should occur while sending a multi-page document, resend only the failed pages.

Setting up 4.1
Starting from PC 4.3
Sending NIMS message 4.6
Receiving NIMS message 4.8
Functions 4.10
Last number list 4.12
Phone book 4.13
Key lock 4.15
Default Net service provider & terrestrial network 4.16
User access 4.17
Data/printer port setup 4.20
Phone setup 4.23
Setting date and time 4.23
Setting key lock 4.24
Language setup 4.25
Language reset 4.26
Mailbox access numbers 4.27
Call charge setup 4.28
Traffic log 4.29
Precharge 4.32
Precharge on SIM card 4.38

Advanced functions:

Access control 4.40
Restricted dialing 4.41
Restricted dialing setup 4.43
Access code 4.44
Access code setup 4.45
Restricted SIM usage 4.46
Checking SIM restrictions 4.47
Setting SIM restrictions 4.48
Satellite setup 4.49
Net service provider and terrestrial network 4.49
S/A operator and terrestrial network 4.49
Configuration 4.50
Port configuration 4.50
Net service providers 4.51
Power conservation 4.52
Set diagnostics 4.52
Storing of Preferred/Allowed Net service provider and Stand Alone operator on the SIM Card 4.53
Charge tone 4.55
Information available 4.56
IMN numbers 4.56
Misc. version ID information 4.57
Oscillator compensation 4.57
Network status 4.57
Installation 4.58
Paid functions 4.58
Phone name setup 4.58

The design and specifications of the equipment may be changed without notice.

General

When connecting a PC to Simrad MS50, access is obtained to all its functions. With a VT100 compatible terminal emulator, such as Windows 95 – HyperTerminal the menu is displayed on the PC screen.

Simrad MS50 also provides access to asynchronous data services through its built-in modem capability. The transmisson rate over the satellite is 2.4 Kbps, and any standard PC with a serial port can be used.

*For configuration from the PC using AT commands, see **appendix C**.*

Installation

Connect the serial cable between the serial port on the PC and the 9-pin **RS-232** port on the Simrad MS50 connector panel.

*For configuration, see **"Data/printer port setup"** in this chapter.*

*For wiring details, see **appendix B – Installation of Simrad MS50**, or "DTE interface" in **appendix C**.*

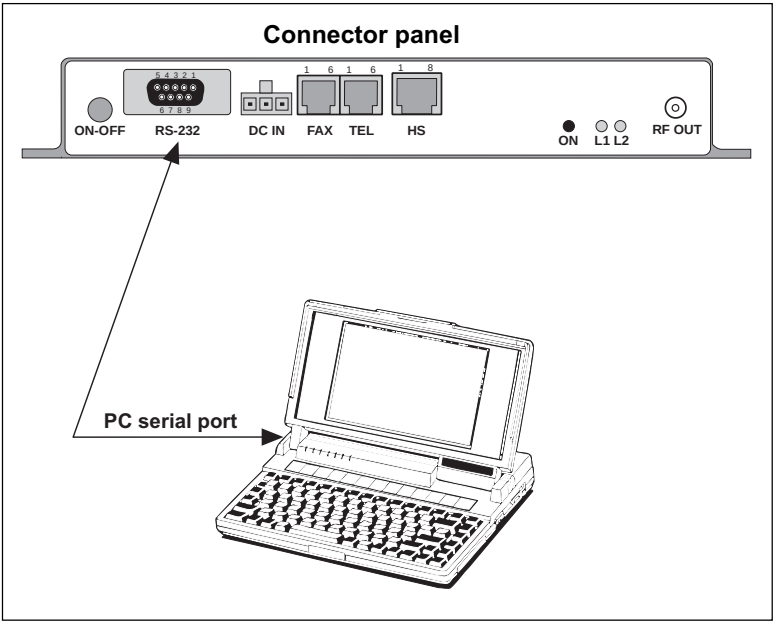


Figure 4.1 The PC is connected to the RS-232 port.

Initial settings of Simrad MS50

- Speed, normally 9600 bps.
- 8 data bits
- No parity
- 1 stop bit

*See **"Data/printer port setup"** in this chapter.*

Initial settings of the PC

Use a PC terminal emulator program, f.ex. HyperTerminal.

1 Start the HyperTerminal.

2 Enter a name for the terminal, f.ex. "modem_test".

3 In the "**Phone Number**" window, select **Direct to COM1** (or the COM port Simrad MS50 is connected to).

4 In the "**COM1 Properties**" window, set as follows:

- Bits per second: 9600 bps.
- Data bits: 8
- Parity: None
- Stop bits: 1
- Flow control: None

5 In the **File** menu, select **Properties** then click **Settings** and select **Terminal**.

6 Select **ANSI** in the **Emulation** list box.

7 In the **View** menu, click **Fonts**. Select **Terminal** in the Fonts list. Set the size to 11 points.

8 Click on **Ok**.

Testing the installation

Entering a command on the PC keyboard (f.ex. A T ↵ R) should cause "OK" to be displayed on the screen.

If there is no response, check that the baud rate setting is the same both for the PC and Simrad MS50.

Procedure

1 Turn on Simrad MS50, *see chapter 2. Operation.*

2 Open the terminal emulator on the PC, and connect. Key in the start prompt **at+wneradte**.

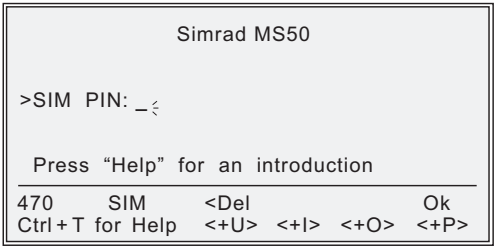
at+wneradte

Terminal MMI started in mode: MMI (multilingual)

CTRL-f to switch font

CTRL-x to return to AT command mode.

Press space to continue



Note!
When using the terminal emulator, the data/printer port (DTE) is busy and is not capable of receiving a data call.

The user is prompted for the 4-8 digit Personal Identification Number each time Simrad MS50 is switched on:

3a Enter the SIM PIN code, and press ↵ R:

3b If no SIM card is inserted, the "Phone PIN" will be prompted for.

4 During the satellite search, beep tones will be heard in the handset

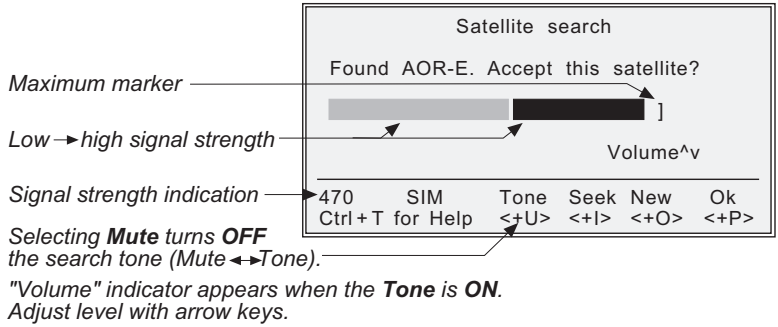
- - - - - - - - slow intermittent tones when searching for **any satellite**.

- - - - - - - - - - - - - - - - rapid intermittent tones when searching for a **specific satellite** *(faster when searching for a single satellite).*

5 When receiving a satellite signal, a short tone will sound. If it is an Inmarsat satellite, a continuous tone will sound with varying frequency *(provided the **Tone** is ON, see next page)*.

When closing in on a satellite, the tone should increase in frequency.

6 A signal strength bar will appear in the display.
The longer the signal bar or higher the signal strength indicator value, the better the signal quality. The bar becomes dashed when the signal strength value reaches 400.
The maximum marker indicates the highest signal strength achieved during the current search.

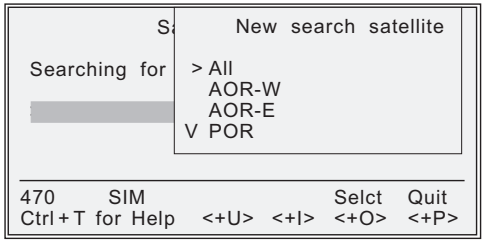

Satellite search
Found AOR-E. Accept this satellite?
]
Volume^v
470 SIM Tone Seek New Ok
Ctrl+T for Help <+U> <+I> <+O> <+P>
Maximum marker
Low ►high signal strength
Signal strength indication
Selecting Mute turns OFF the search tone (Mute ◄►Tone).
"Volume" indicator appears when the Tone is ON. Adjust level with arrow keys.

8 Selecting the **Seek** function starts the search again.

New allows selection of a specific satellite:

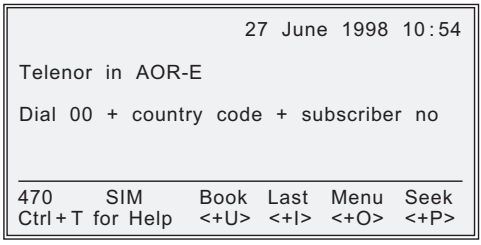
Scroll down to desired satellite and select:

*Note! Searching for a **New** satellite should be done under special circumstances only. Searching for **any satellite** is the normal mode of operation (default).*



9 Selecting **Ok** initializes the system.

10 The equipment is ready for use when the **Main window** appears:

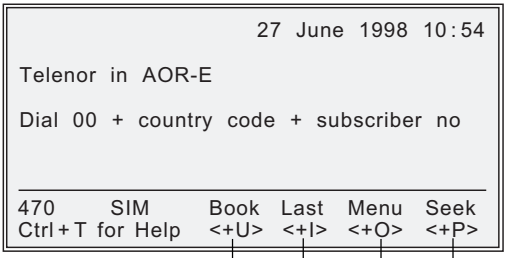


To make a call, see chapter 2. Operation

Selecting functions

The Simrad MS50 screen window shows the function currently assigned to each "soft" key <U, I, O or P>

The example shows the functions selectable when starting Simrad MS50.



In this situation, pressing:

- Ctrl U selects the phone **Book**
- Ctrl I shows the 10 **Last** number list
- Ctrl O selects the **Menu**
- Ctrl P selects the antenna **Seek** function

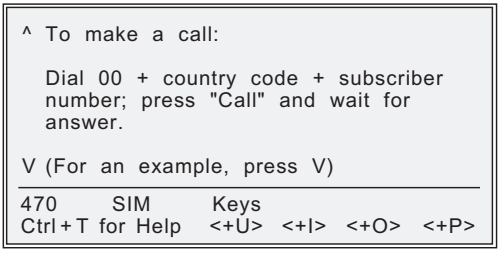
The function selectable with Ctrl U, I, O or P will vary with the opened window.

*For an overview, see **"Functions"** later in this chapter.*

Help

Whenever needed, pressing:

Ctrl T selects **Help**


^ To make a call:
Dial 00 + country code + subscriber number; press "Call" and wait for answer.
V (For an example, press V)
470 SIM Keys
Ctrl+T for Help <+U> <+I> <+O> <+P>

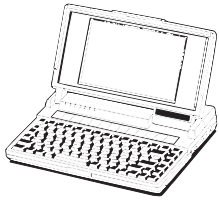
V = arrow down

Ctrl U selects **Keys** for direct explanation of the various tasks performed by the four "soft" keys.

Printing

When printing f.ex. a NIMS message or Traffic log, the screen switches to *text mode*. Simrad MS50 must be restarted to revert to *data mode*.

Sending NIMS message



Note!
Sending and receiving NIMS messages is only possible through service providers that support the NIMS service.

```
                                    27 June 1998 10:54

 Telenor in AOR-E

 Dial 00 + country code + subscriber no

470      SIM      Book  Last  Menu  Seek
Ctrl+T for Help   <+U>  <+I>  <+O>  <+P>
```

☞ Ctrl O

```
470      SIM      Lock  Mail  Selct  Quit
Ctrl+T for Help   <+U>  <+I>  <+O>  <+P>
```

*Select **Menu** and then **Mail** to open Mail manager:*

☞ Ctrl I

Example:

You have received 6 messages, 3 are not read →

One message is not sent →

```
                    Mail manager

In Box :   6  mail   3  unread

Out Box :  2  mail   1  unsent

You have new mail

470 IN SIM       In    Out   Setup  Quit
Ctrl+T for Help  <+U>  <+I>  <+O>  <+P>
```

*Selecting **In** opens In Box, see **Receiving NIMS message*** → ☞ Ctrl I

*Indicates that the message is not yet **Sent*** →

message details

☞ ↓ ☞ →

```
                    Out Box

001> *Have a nice day                    >
002   Happy Birthday

470 IN SIM       Remov  Edit  New   Print
Ctrl+T for Help  <+U>   <+I>  <+O>  <+P>
```

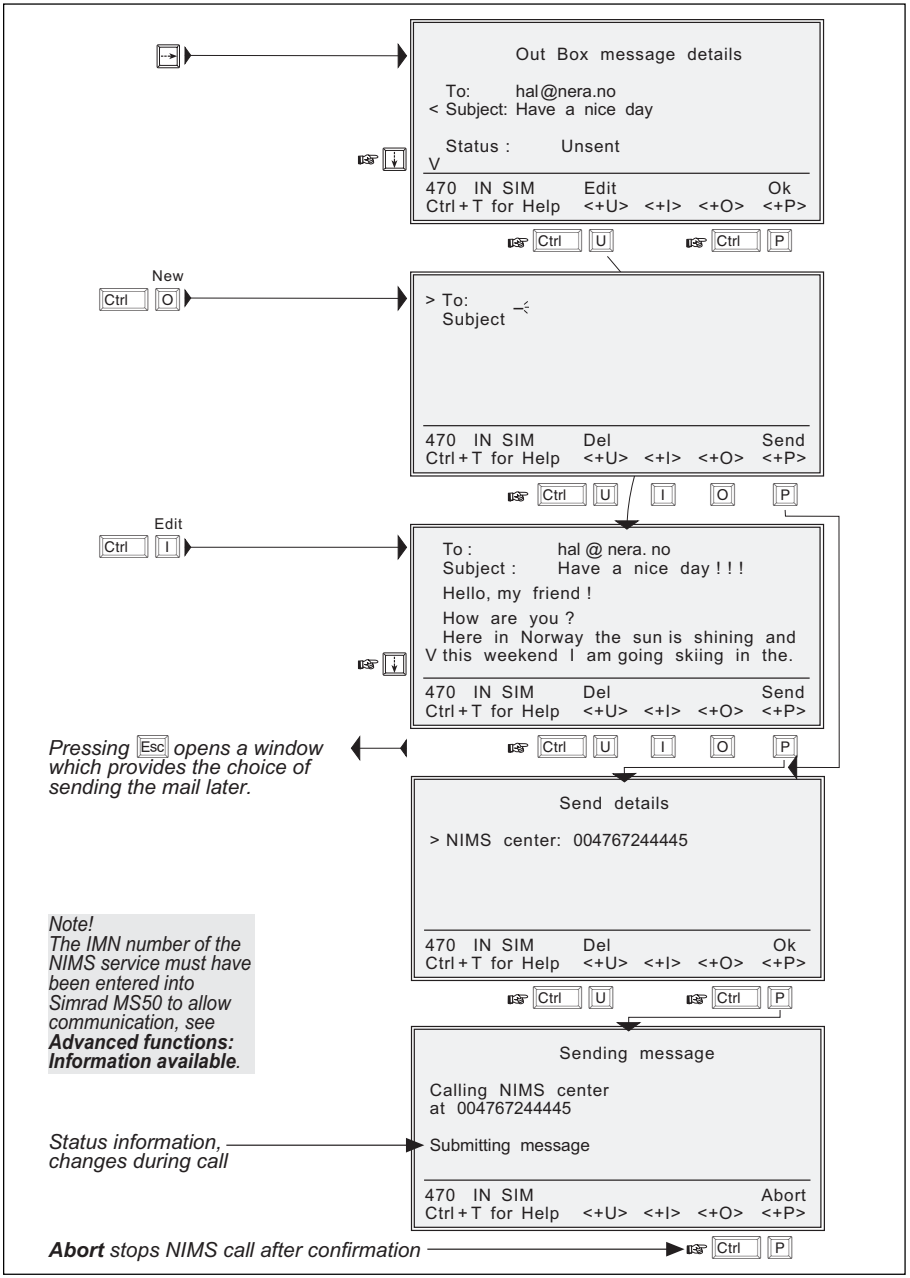
***Remov** erases selected message.*

***Print** outputs message to screen. Appears only if a printer is enabled, see "**Data/printer port setup**".*

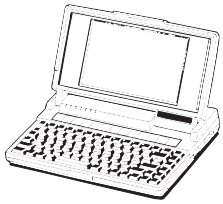
See next page

```
                Setup for sending mail

User name :      Kari Nordmann

NIMS center :    004767244445

470 IN SIM       Edit                Ok
Ctrl+T for Help  <+U>  <+I>  <+O>  <+P>
```

☞ Ctrl P ***Ok** reverts to mail manager*


Out Box message details
To: hal@nera.no
< Subject: Have a nice day
Status : Unsent
V
470 IN SIM Edit Ok
Ctrl + T for Help <+U> <+I> <+O> <+P>
Ctrl U
Ctrl P
New
Ctrl O
> To:
Subject
470 IN SIM Del Send
Ctrl + T for Help <+U> <+I> <+O> <+P>
Ctrl U I O P
Edit
Ctrl I
To : hal @ nera. no
Subject : Have a nice day ! ! !
Hello, my friend !
How are you ?
Here in Norway the sun is shining and
V this weekend I am going skiing in the.
470 IN SIM Del Send
Ctrl + T for Help <+U> <+I> <+O> <+P>
Pressing Esc opens a window which provides the choice of sending the mail later.
Ctrl U I O P
Send details
> NIMS center: 004767244445
470 IN SIM Del Ok
Ctrl + T for Help <+U> <+I> <+O> <+P>
Note!
The IMN number of the NIMS service must have been entered into Simrad MS50 to allow communication, see Advanced functions: Information available.
Ctrl U
Ctrl P
Sending message
Calling NIMS center
at 004767244445
Status information, changes during call
Submitting message
470 IN SIM Abort
Ctrl + T for Help <+U> <+I> <+O> <+P>
Abort stops NIMS call after confirmation
Ctrl P

Receiving NIMS message



```
                                27 June 1998 10:54

 Telenor in AOR-E

 Dial 00 + country code + subscriber no


470  IN SIM        Book  Last  Menu  Seek
Ctrl+T for Help    <+U>  <+I>  <+O>  <+P>
```

☞ Ctrl O

```
470  IN SIM        Lock  Mail  Selct  Quit
Ctrl+T for Help    <+U>  <+I>  <+O>  <+P>
```

☞ Ctrl I

*Select **Menu** and then **Mail** to open Mail manager:*

Example:

You have received 6 messages, 3 are not read →

One message is not sent →

```
                Mail manager

In Box :   6  mail   3  unread

Out Box :  2  mail   1  unsent

You have new mail

470  IN SIM        In    Out   Setup  Quit
Ctrl+T for Help    <+U>  <+I>  <+O>  <+P>
```

*Selecting **In** opens In Box* → ☞ Ctrl U

*See "**Sending NIMS message**".*

*Indicates that the message is not yet **Read***

```
                In Box
  001> *Hello !                              >
  002   Voice mailbox message
  003   Fax mailbox message
  004  *Mail me !
  005  *Information from Service Provider
V
470  IN SIM        Print  Remov  Read  Get
Ctrl+T for Help    <+U>   <+I>   <+O>  <+P>
```

☞ ↓ ☞ →

***Remov** erases selected message.*

***Print** outputs message to printer. Appears only if a printer is enabled, see "**Data/printer port setup**".*

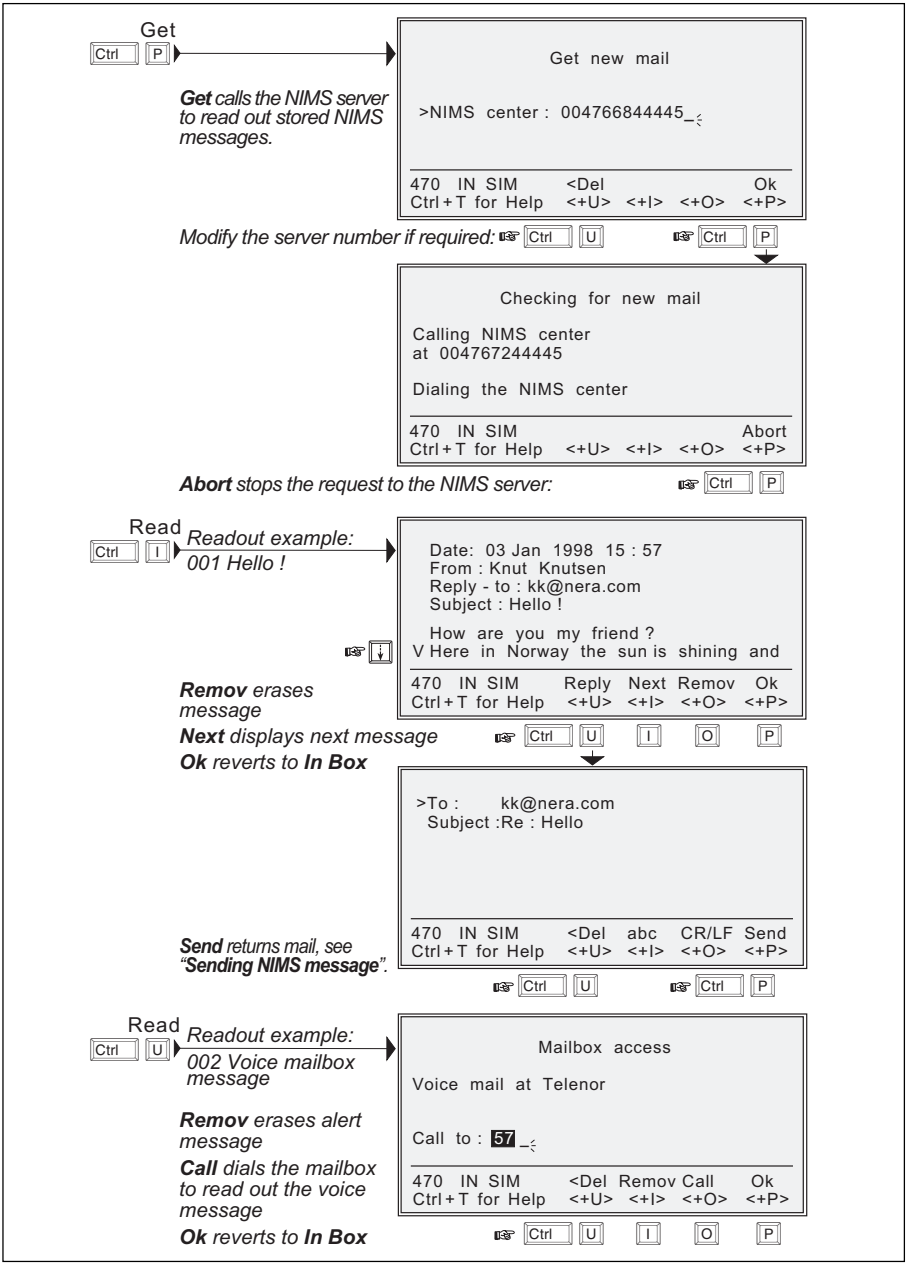
☞ Ctrl U I O P

See next page

```
              In Box message details
   Type:      NIMS
< From:       Knut Knutsen
   Sent:      26 June 1998 15:57
   Arrived:   26 June 1998 15:58
   Status :   Unread
V
470  IN SIM        Read                 Ok
Ctrl+T for Help    <+U>  <+I>  <+O>  <+P>
```

☞ Ctrl U ☞ Ctrl P ***Ok** reverts to **In box***

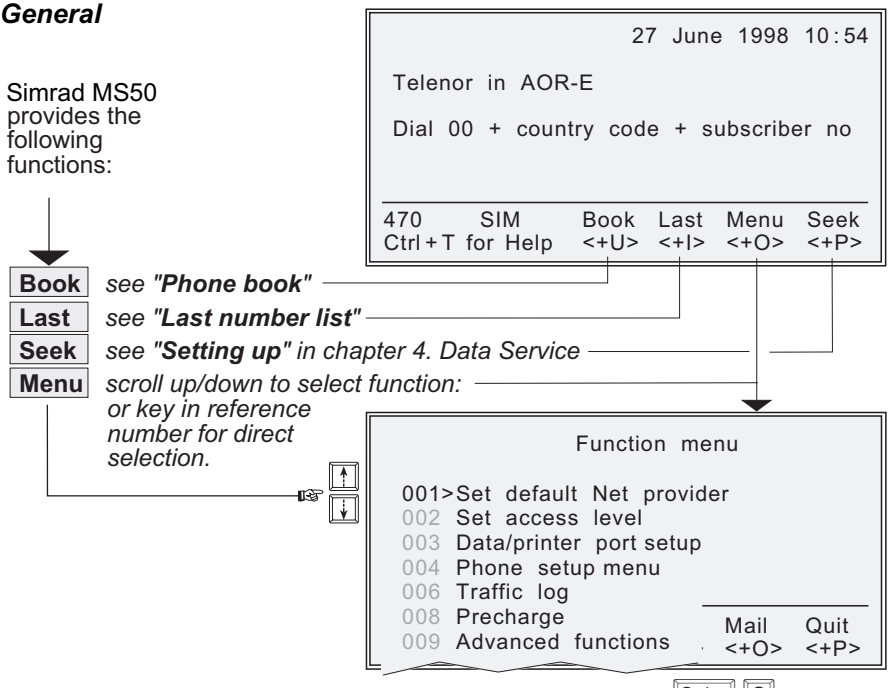
See next page


Get
Ctrl P
Get new mail
>NIMS center : 004766844445
470 IN SIM <Del Ok
Ctrl + T for Help <+U> <+I> <+O> <+P>
Get calls the NIMS server to read out stored NIMS messages.
Modify the server number if required: Ctrl U Ctrl P
Checking for new mail
Calling NIMS center
at 004767244445
Dialing the NIMS center
470 IN SIM Abort
Ctrl + T for Help <+U> <+I> <+O> <+P>
Abort stops the request to the NIMS server: Ctrl P
Read
Ctrl I
Readout example:
001 Hello !
Date: 03 Jan 1998 15 : 57
From : Knut Knutsen
Reply - to : kk@nera.com
Subject : Hello !
How are you my friend ?
V Here in Norway the sun is shining and
470 IN SIM Reply Next Remov Ok
Ctrl + T for Help <+U> <+I> <+O> <+P>
Remov erases message
Next displays next message
Ok reverts to In Box
Ctrl U I O P
>To : kk@nera.com
Subject :Re : Hello
470 IN SIM <Del abc CR/LF Send
Ctrl + T for Help <+U> <+I> <+O> <+P>
Send returns mail, see "Sending NIMS message".
Ctrl U Ctrl P
Read
Ctrl U
Readout example:
002 Voice mailbox message
Mailbox access
Voice mail at Telenor
Call to : 57
470 IN SIM <Del Remov Call Ok
Ctrl + T for Help <+U> <+I> <+O> <+P>
Remov erases alert message
Call dials the mailbox to read out the voice message
Ok reverts to In Box
Ctrl U I O P

Functions

General

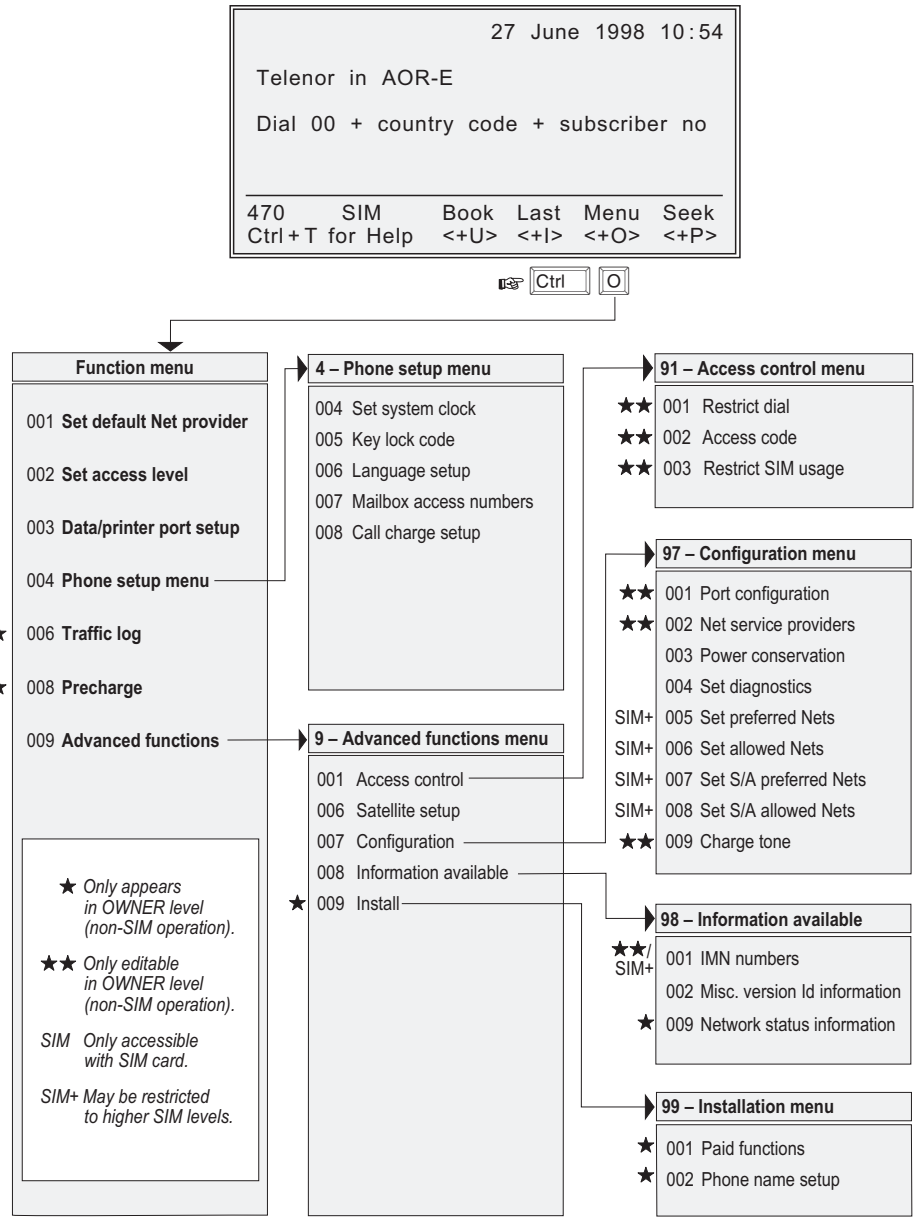
Simrad MS50 provides the following functions:



See also overview of functions on next page

Ref.	*Function*	*Features*
001	**Set default Net provider**	*Allows changing Net service provider and terrestrial network. See "**Selecting default Net service provider**".*
002	**Set access level**	*Allows shifting between • user level, and • owner / CHV2 level (non-SIM / SIM operation), changing phone / SIM PIN code and owner / CHV2 password. See "**User access**".*
003	**Data/printer port setup**	*Enables port for connection of printer or PC, and sets transfer bit rate. See "**Data/printer port setup**".*
004	**Phone setup menu**	*Sets system clock, key lock code, language and mailbox access numbers. See "**Phone setup**".*
006	**Traffic log**	*Logs calls and provides detailed printout. See "**Traffic log**".*
008	**Precharge**	*Allows preprogramming of total call duration. See "**Precharge**".*
009	**Advanced functions**	*See overview on next page.*

Overview of menu functions


27 June 1998 10:54
Telenor in AOR-E
Dial 00 + country code + subscriber no
470 SIM Book Last Menu Seek
Ctrl+T for Help <+U> <+I> <+O> <+P>
Ctrl
O
Function menu
001 Set default Net provider
002 Set access level
003 Data/printer port setup
004 Phone setup menu
★★ 006 Traffic log
★★ 008 Precharge
009 Advanced functions
★ Only appears in OWNER level (non-SIM operation).
★★ Only editable in OWNER level (non-SIM operation).
SIM Only accessible with SIM card.
SIM+ May be restricted to higher SIM levels.
4 – Phone setup menu
004 Set system clock
005 Key lock code
006 Language setup
007 Mailbox access numbers
008 Call charge setup
9 – Advanced functions menu
001 Access control
006 Satellite setup
007 Configuration
008 Information available
★ 009 Install
91 – Access control menu
★★ 001 Restrict dial
★★ 002 Access code
★★ 003 Restrict SIM usage
97 – Configuration menu
★★ 001 Port configuration
★★ 002 Net service providers
003 Power conservation
004 Set diagnostics
SIM+ 005 Set preferred Nets
SIM+ 006 Set allowed Nets
SIM+ 007 Set S/A preferred Nets
SIM+ 008 Set S/A allowed Nets
★★ 009 Charge tone
98 – Information available
★★/SIM+ 001 IMN numbers
002 Misc. version Id information
★ 009 Network status information
99 – Installation menu
★ 001 Paid functions
★ 002 Phone name setup

Last number list

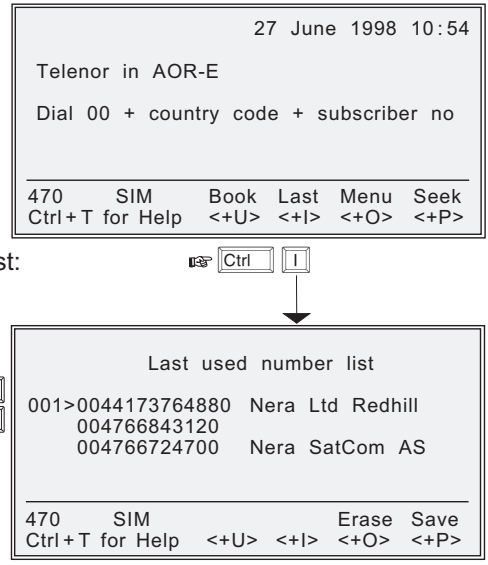
Last

General

The last **10 numbers** called are stored in the Simrad MS50 memory or on the SIM card. Each number may comprise up to **22 digits**.
If the number is already stored in the phone book, the subscriber's name appears in the list.

The last used number list stored on the SIM card replaces that of the phone when inserting the card. (It is restored when removing the SIM).

Readout:



1 Selecting **Last** opens used number list:

2 Scroll up/down to the wanted number:

3 **Save** copies the number to the phone book. Name will be prompted.

4 **Erase** deletes **all** entries in Last used number list.

General

The following may be stored for abbreviated dialing from the Display Handset or telephone:

- **99 entries** with names of up to **29 characters** in Simrad MS50.
- Up to **100 entries** (no.100 and up) with names of up to **10 characters** on the SIM card (varies with type).

The list is sorted by name. The SIM card entries and "phone" entries merge when the card is inserted.

Dialing example

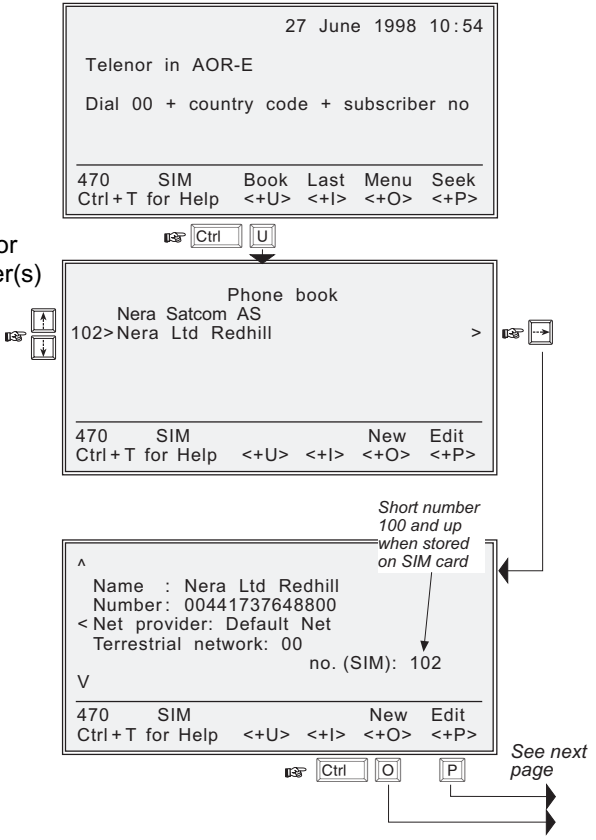
☞ 2 3 8 # on the Display Handset fetches and sends the telephone number stored in the phone book under short number 8.

Phonebook entry

1 Book opens the phone book:

2 Scroll up/down or search for first letter(s) of subscriber name:

3 Right arrow displays all data:



Editing entry

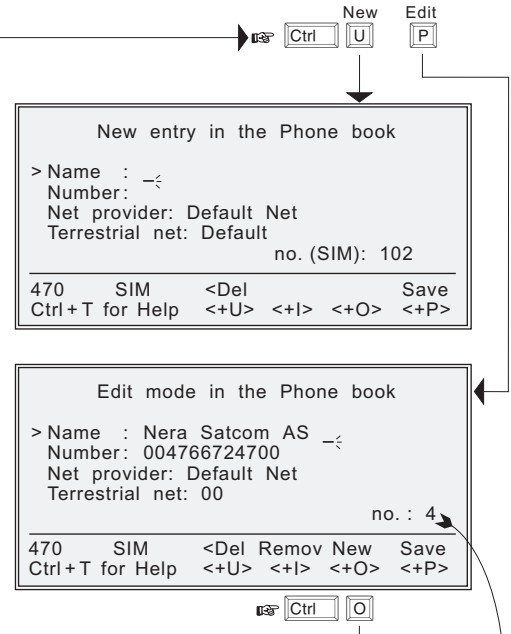
4 New opens new entry window:

5 Edit opens existing entry window.

6 Del deletes the digit to left of cursor.

7 Save stores phone book entry.

8 Remov deletes phone book entry.



Copying entry from f.ex. non-SIM book to SIM book

9 Select **New** with entry in Edit mode.

The entry is assigned the first free short number on the SIM card.

General

The key lock function prevents unauthorized use when Simrad MS50 is on, but still allows reception of incoming calls.

When the lock is set no dial tone is produced, and PC AT commands are unavailable.

Entering a login password (Phone PIN / SIM PIN) will still unlock the phone. *(If Phone PIN / SIM PIN is disabled, turning power off and then on will not unlock the phone.)*

The facility is only accessible when Simrad MS50 is restricted for use with a **specific SIM**, or with **no SIM**.

*See **Advanced functions: Access control**.*

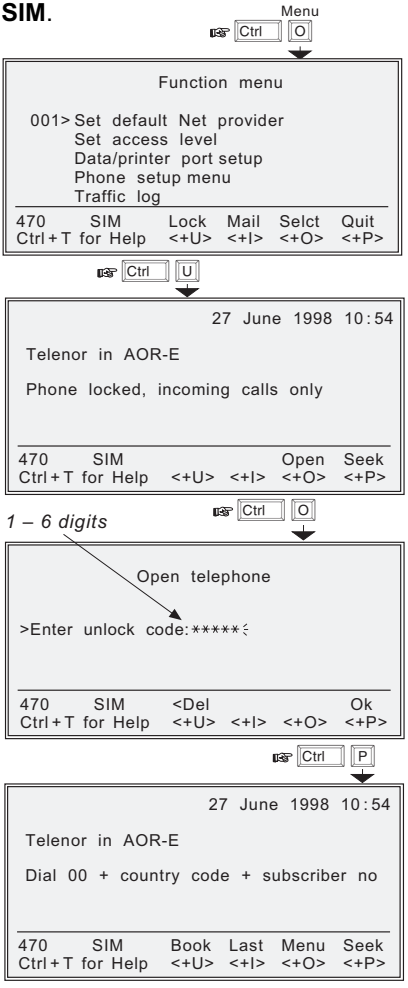
*To initiate the key lock and enter or change the unlock code, see **Phone setup: setting key lock**.*

Locking

1 Select the function **Menu**:

and then **Lock**:

A warning is displayed in the main window:



Unlocking

2 Select **Open** and enter the unlock code:

3 **Ok** opens the normal main window:

General

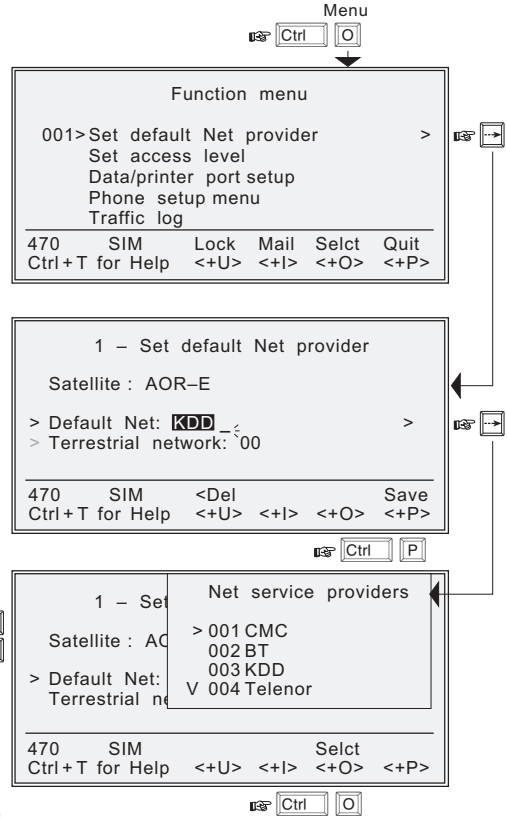
The default Inmarsat Net service provider (ISP) for a satellite (Ocean Region) is automatically used if the user does not select another one when making a call.

When using SIM card, selection of an ISP is restricted to one of the allowed Net service providers!

When the Restricted Net function is enabled, and with some SIM cards, selection of default Net service provider is not possible. The entry "001 Set default Net provider" will then not appear in the Function menu.

Procedure

1 Select the function **Menu**:



2 **Selct** or **right arrow** opens **Set default Net provider** window:

3 Key in Net service provider code, or press **right arrow** to display list of available Nets:

4 Scroll up/down to select Net:

5 **Selct** enters the chosen Net.

6 Return to step 3, scroll down and key in Terrestrial network code.

7 **Save** stores the selected Net service provider and Terrestrial network as default.

General

The Simrad MS50 user program is accessible from two levels:

- **USER LEVEL** – accessed by Phone PIN or SIM PIN.

> *Note! If the Phone PIN is accidentally lost, it is possible to reset the user's password to default by logging in as owner:*
>
> "Phone PIN: * + owner's password"
>
> *(Resetting is not possible on SIM card.)*

- **CHV2 LEVEL / OWNER LEVEL** – accessed by CHV2 or owner level passwords. With a SIM card inserted, the password allows access to **CHV2 level SIM** functions. Without a SIM card the password allows access to **owner level** phone resident functions.

Warning!
To prevent misuse, passwords other than default must be entered before putting Simrad MS50 in operation.

User level / changing PIN code (SIM or Phone PIN):

1 Select the function **Menu** and scroll down to **Set access level**:

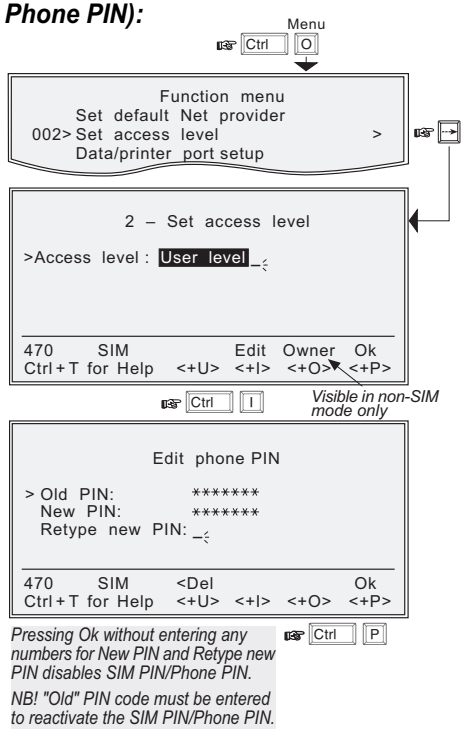
2 **Selct** or **right arrow** opens the Set access level window:

3 **Edit** opens the PIN code window:

4 Key in:
- Current PIN code
- New PIN code
- Retype to confirm

Select **Ok** following each entry, and to store new PIN code:

To shift to CHV2/OWNER level and change password, continue on following pages . . . . . ➳



Pressing Ok without entering any numbers for New PIN and Retype new PIN disables SIM PIN/Phone PIN.

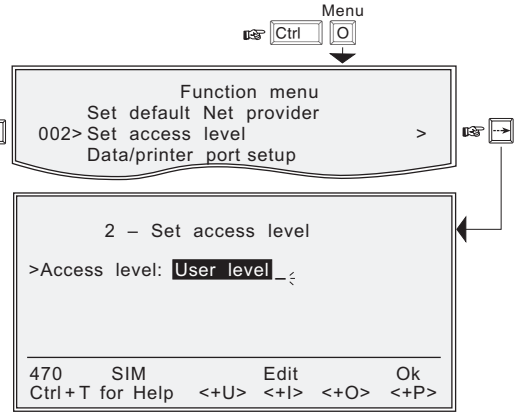
NB! "Old" PIN code must be entered to reactivate the SIM PIN/Phone PIN.

Shifting to CHV2 level / changing password:

1 Select the function **Menu**:

2 Scroll down to **Set access level**:

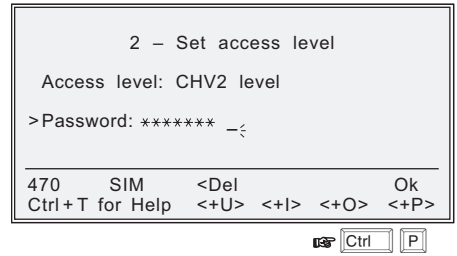
3 **Selct** or **right arrow** opens the Set access level window:



4 Key in **2002** to open the window for entering password:

5 Key in password:

OK activates the **CHV2 level**:



Changing password:

6 Open Set access level window again:

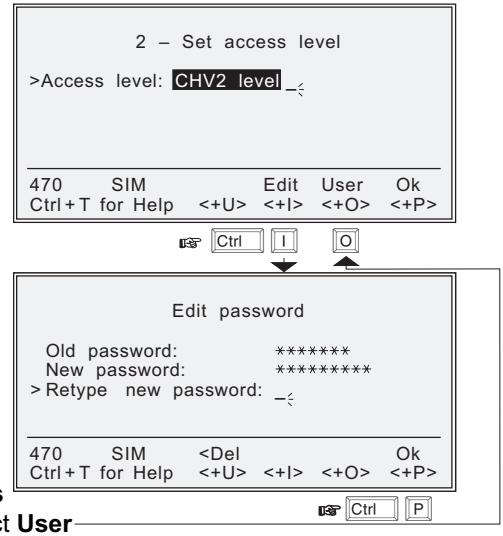
7 **Edit** opens password window:

Key in:

- Current password
- New password
- Retype to check

Select **Ok** following each entry:

To revert to **User level**, reselect the "**Set access level**" function and select **User**



Shifting to owner level / changing password:

1 Select the function **Menu**:

2 Scroll down to **Set access level**:

3 **Selct** or **right arrow** opens the Set access level window:

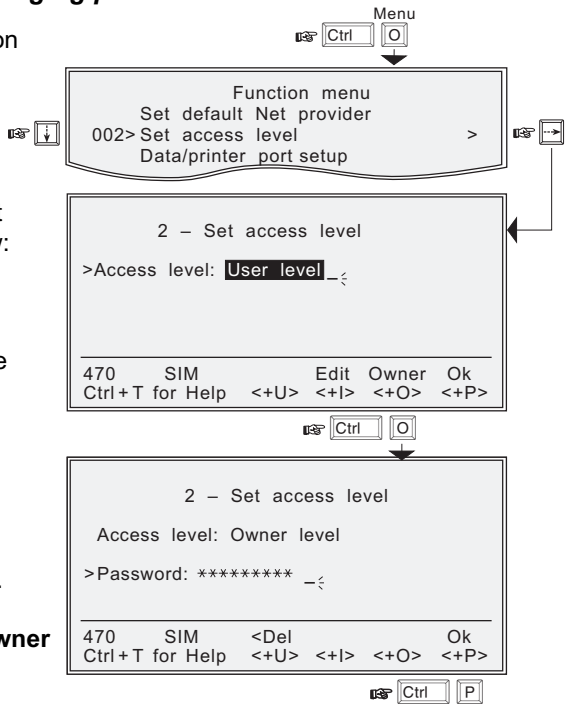
4 **Owner** opens the window for entering the password:

*Note! The **default** password is:*

1 2 3 4 5 6 7 8 9 0

5 Key in password.

OK activates the **Owner level**:



Changing password:

6 Open set access level window again:

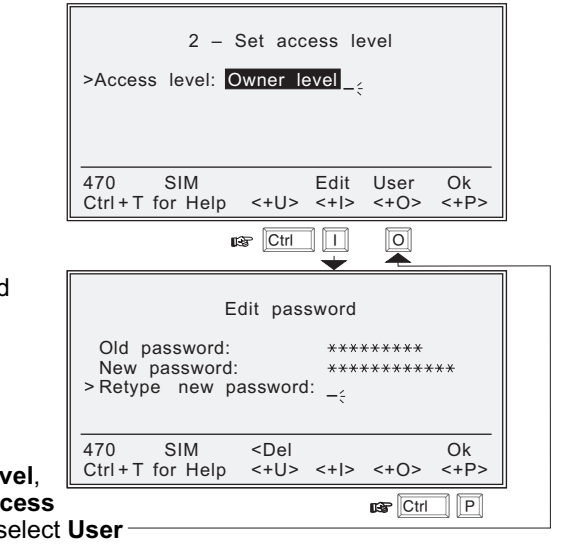
7 **Edit** opens password window:

Key in:

- Current password
- New password *(10 – 12 digits)*
- Retype to check

Select **Ok** following each entry:

To revert to **User level**, reselect the "**Set access level**" function and select **User**



Data/printer port setup Menu

General

The **RS-232** port may be set to operate with a PC or, for instance, to output a Traffic log directly to a printer.

Note! The bit rate setting applies for both PC and printer transfer.

When printing f.ex. the Traffic log to the PC, the screen enters text mode. To revert to data mode, Simrad MS50 must be restarted.

Setup for data communication

- Speed as selected on next page, normally 9600 bps.
  Note! The bit rate set between the PC and the Simrad MS50 must be higher than the nominal 2400 bps Simrad MS50-to-satellite bit rate to ensure maximum speed transfer.
- No parity *
- 8 data bits *
- 1 stop bit *

* *These parameters can only be changed using AT commands, see* ***appendix C****.*

Setup for output to printer

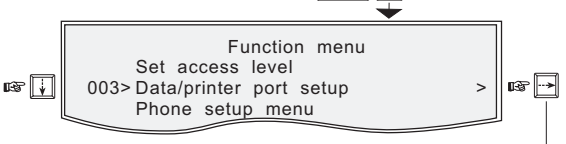
A printer must have serial interface, and is set as follows:

- Speed as selected on next page, i.e. the bit rate specified for the printer to be connected.
- No parity
- 8 data bits
- 1 stop bit

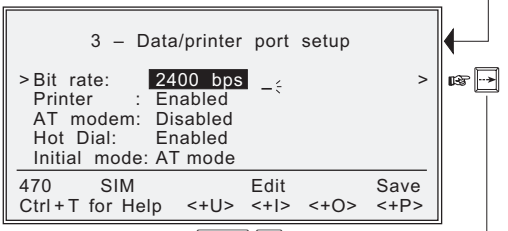
Procedure

1 Select the function **Menu**:

2 Scroll down to **Data/printer port setup**:



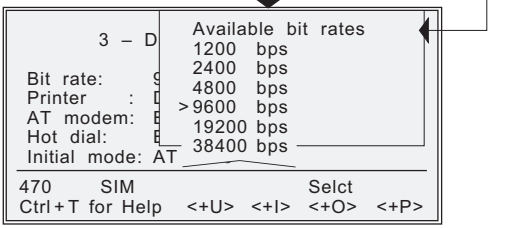
3 **Selct** or **right arrow** selects the **Data/printer port setup** window:



Bit rate:

4 **Edit** or **right arrow** opens list of bit rates:

5 Scroll up/down to required data/ printer bit rate:



Note!
It is recommended to use 9600 bps for data communication.

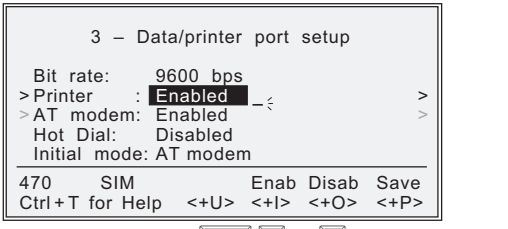
6 **Selct** enters the chosen rate:

Printer:

For output to printer, select bit rate according to printer specifications.

7 Scroll down to printer:

Enable/**Disab**le the DATA port for printing, as required.


3 – Data/printer port setup
Bit rate: 9600 bps
> Printer : Enabled >
> AT modem: Enabled >
Hot Dial: Disabled
Initial mode: AT modem
470 SIM Enab Disab Save
Ctrl+T for Help <+U> <+I> <+O> <+P>

AT modem:

8 Scroll down to AT modem:

Enable/**Disab**le the DATA port for AT modem as required.

Recommended port setup			
Mode	*Output to printer*	*Data com. (AT)*	*Data com. (DTR dialing)*
Printer:	Enabled	Disabled	Disabled
AT modem:	Disabled	Enabled	Disabled
Hot dial:	Disabled	Disabled	Enabled

Hot dial:

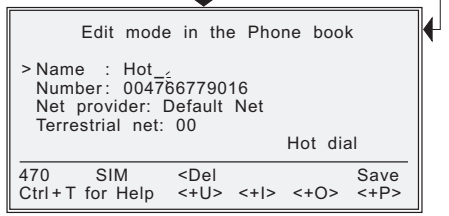
When enabled, this function monitors the DTR-pin on the DATA port. If the DTR-pin is pulled high by equipment connected to the DATA port, a data call is automatically initiated to a pre-programmed number. The number is automatically stored under short number 99.

9 Scroll down to Hot Dial:

10 **Setup** opens the Phone book editing window.

Enter name, f.ex. "Hot".

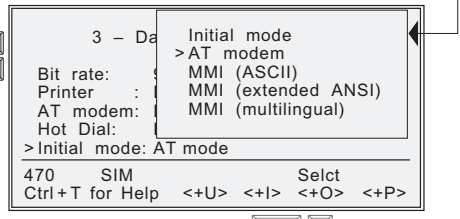
Fill in required number, and change provider and network, if needed.



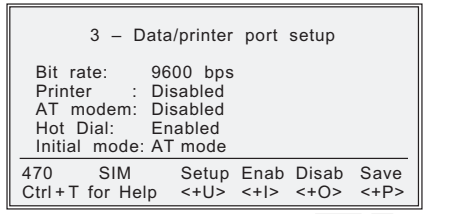
Initial mode:

The mode is set to AT modem as default.
When selecting any of the MMI (Man Machine Interface) settings, the PC screen automatically displays the Simrad MS50 menu.

11 Choose Initial mode (step 9), and scroll down to required MMI interface:



Selct enters the chosen mode: Ctrl O



12 **Save** stores the settings: Ctrl P

General

This function sets as follows:

- Date and time, *see below.*
- Key lock, which prevents unauthorized use, *see following pages.*
- Language, *see following pages.*
- Mailbox access numbers, *see following pages.*

Setting date and time

The date and time is set to UTC (GMT) at the factory. It is recommended to leave this setting if correct.

Warning! The system is automatically restarted when accepting new time settings. All calls will be disconnected.

Example

1 Select function **Menu** and scroll down to **Phone setup menu**: ☞ ↓

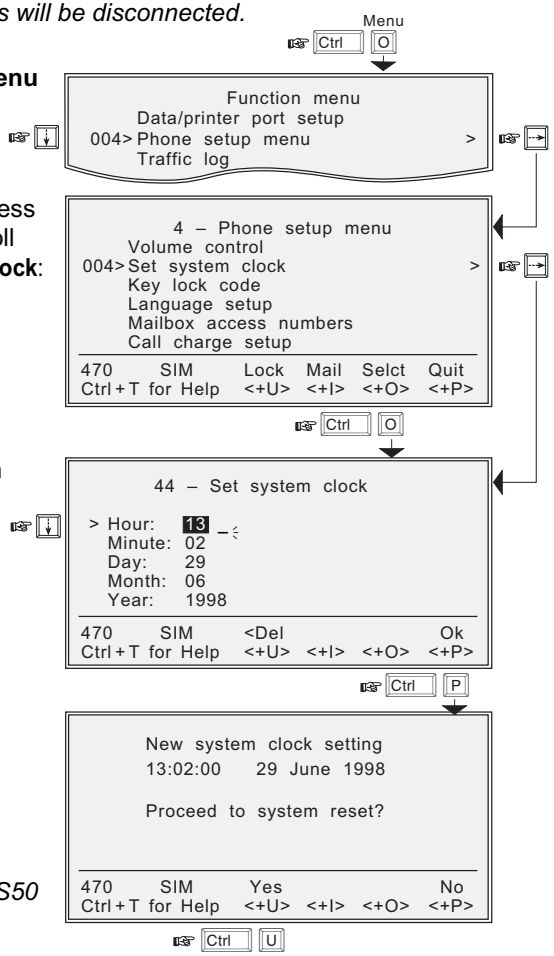
2 Select **Selct** or press **right arrow** and scroll down to **Set system clock**:

3 Continue with **Selct** or **right arrow** to select **Set system clock** function and key in new data: ☞ ↓

Move down using **down arrow**.

4 Select **OK** and confirm with **Yes** if settings are correct.

Note! The Simrad MS50 is now restarted.



Setting key lock

Simrad MS50 must be set for use with a **specific SIM**, or with **no SIM**. *See **Advanced functions: Access control**.*

Procedure

1 Select the function **Menu**:

2 Scroll down to **Phone setup menu**:

3 Select **Selct** or press **right arrow** and scroll down to **Key lock code**:

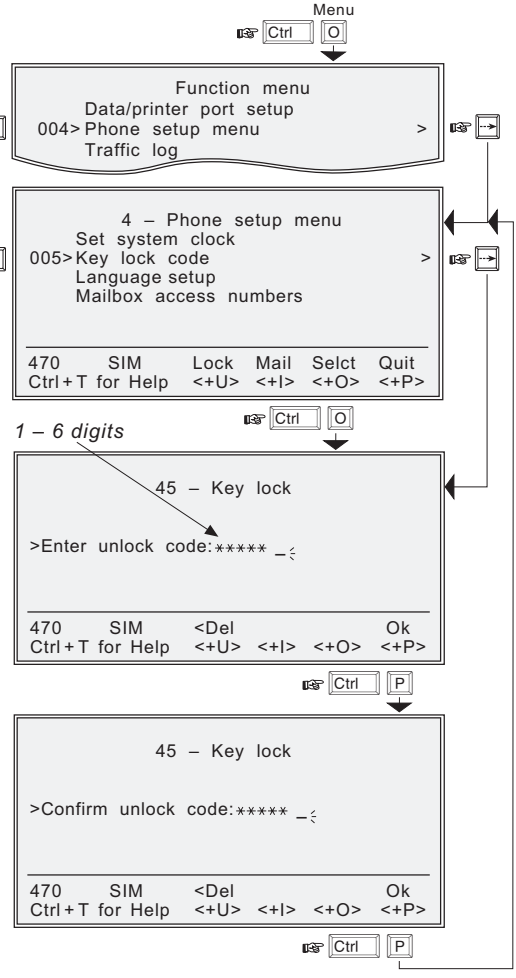
4 Continue with **Selct** or **right arrow** to **Key lock** window.

Enter unlock code: *(1 - 6 digits)*

and select **OK:**

5 Repeat code to confirm:

and press **OK** again:

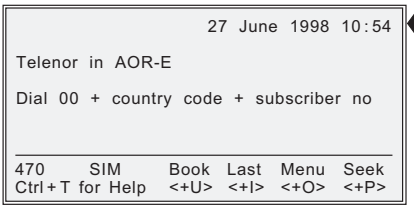


Language setup

The display language may be changed as described below.

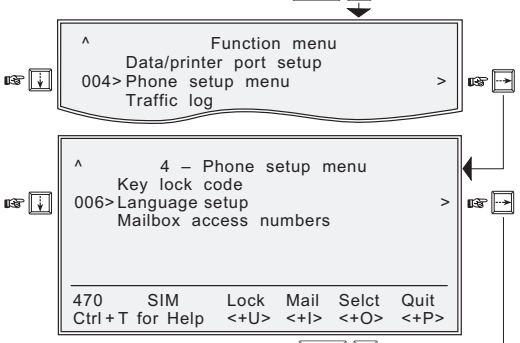
Example

1 Select the function **Menu**:

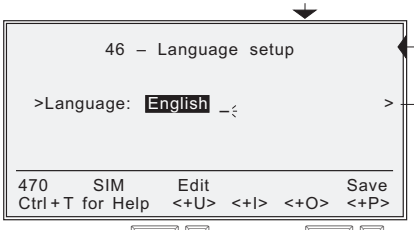


2 Scroll down to **Phone setup menu**:

3 Select **Selct** or press **right arrow** and scroll down to **Language setup**:



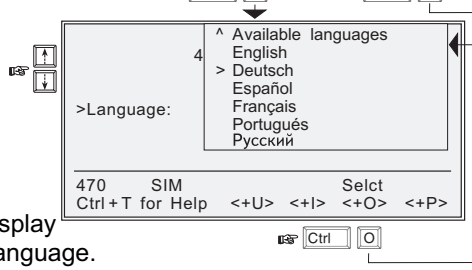
4 Continue with **Selct** or **right arrow** to select function.



5 Select **Edit** and scroll up/down to wanted language:

Selct reads out the selected language in the setup window:

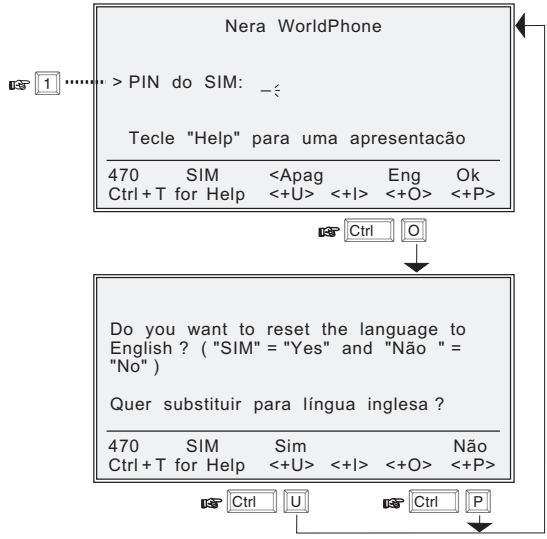
Save changes the display text to the selected language.



To easy restore English, see next page.

Language reset

When starting Simrad MS50 with the display language set to f.ex. Portugese, the **Eng** function key provides an easy way to restore the default English display language:



Mailbox access numbers

When receiving a mail alert (voice, fax or data), the user must call the server mailbox to retrieve the message. To call the mailbox, normally the default number 57 can be used.

The mailbox dial-up number may be changed as described below.

Example

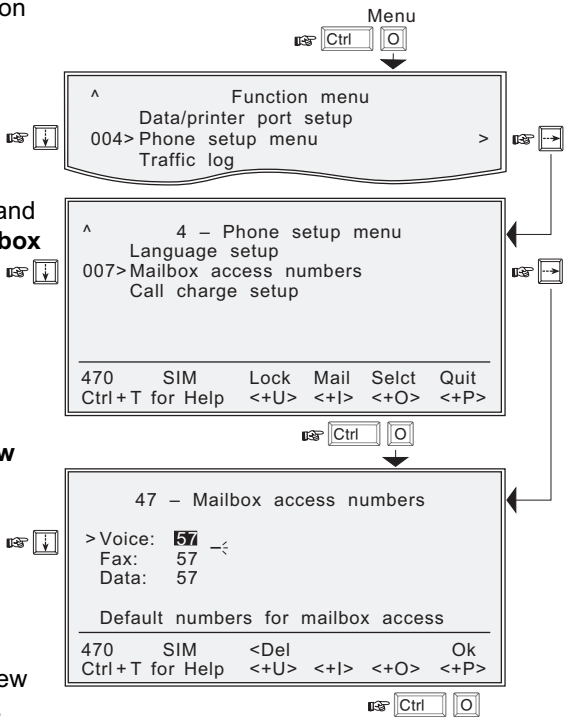
1 Select the function **Menu**:

2 Scroll down to **Phone setup menu**:

3 Select **Selct** or press **right arrow** and scroll down to **Mailbox access numbers**:

4 Continue with **Selct** or **right arrow** to select function and key in new numbers:

5 **OK** stores the new mailbox number(s).



Call charge setup

With the Call charge function enabled the cost of the call will be displayed during the call and for 10 seconds after the call is terminated. Later the charge can be fetched using the Traffic log function.

The price per unit and minimum charge time is set as described below.

Example

1 Select the function **Menu**:

2 Scroll down t o **Phone setup menu**:

3 Select **Selct** or press **right arrow** and scroll down to **Call charge setup**:

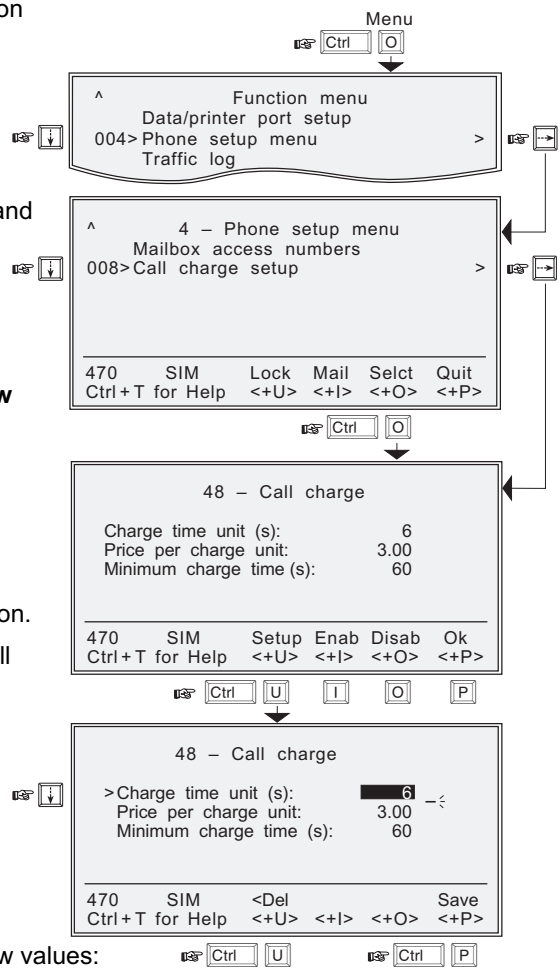
4 Continue with **Selct** or **right arrow** to select the **Call charge** function.

Enab activates the values set below.

Disab disables the Call charge indication.

Ok activates the call charge indication.

5 Select **Setup** to modify entries:


Menu
Ctrl O
^ Function menu
Data/printer port setup
004> Phone setup menu >
Traffic log
^ 4 – Phone setup menu
Mailbox access numbers
008> Call charge setup >
470 SIM Lock Mail Selct Quit
Ctrl+T for Help <+U> <+I> <+O> <+P>
Ctrl O
48 – Call charge
Charge time unit (s): 6
Price per charge unit: 3.00
Minimum charge time (s): 60
470 SIM Setup Enab Disab Ok
Ctrl+T for Help <+U> <+I> <+O> <+P>
Ctrl U I O P
48 – Call charge
>Charge time unit (s): 6
Price per charge unit: 3.00
Minimum charge time (s): 60
470 SIM <Del Save
Ctrl+T for Help <+U> <+I> <+O> <+P>

Save stores the new values: Ctrl U Ctrl P

General

This function logs all outgoing calls both with and without SIM card inserted. Every call is logged with:

- subscriber number, start time and duration
- service (voice, fax, data, NIMS)
- Net provider and satellite
- user name (if access code is enabled) / SIM card FWD

The Simrad MS50 *owner* may set the log output mode as follows, *(see **Traffic log settings**)*:

- off (stops logging)
- cleared (stops logging and clears the log)
- for automatic printout after 1 or 10 calls (auto print limit).
- for display on the screen
- logging of incoming calls

Traffic log readout

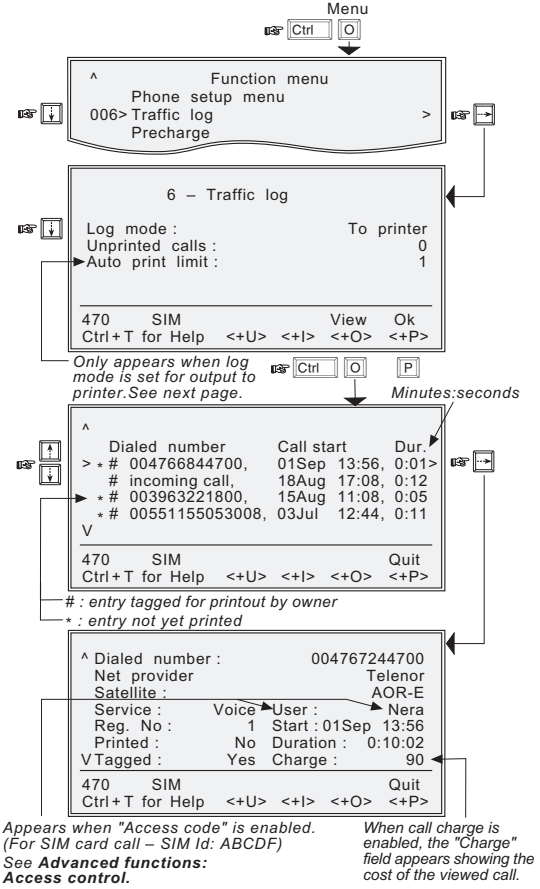
1 Select the function **Menu** and scroll down to **Traffic log**:

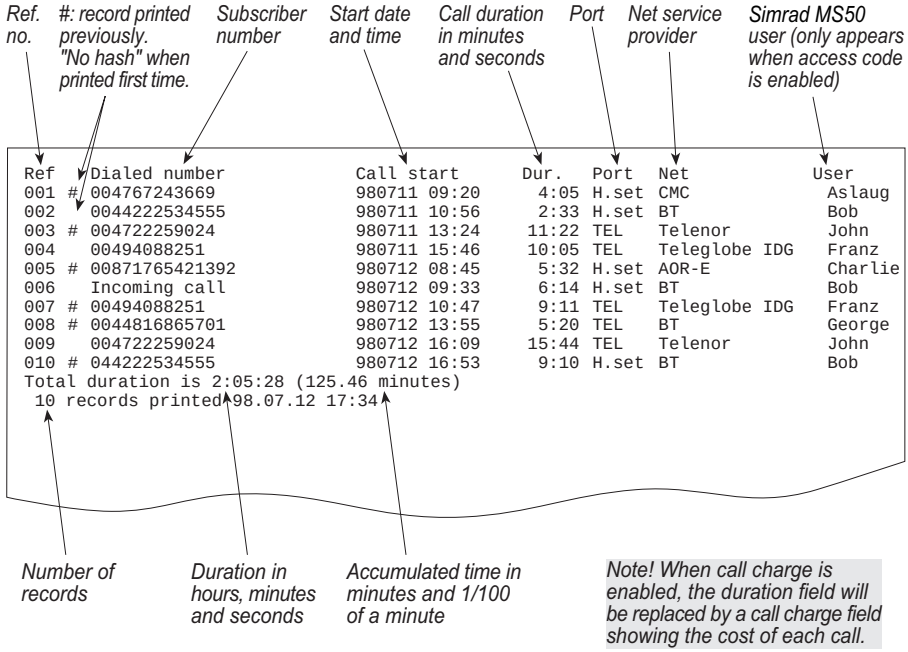
2 **Right arrow** or **selct** opens the **Traffic log** window:

3 **View** displays the list of call data:

Scroll up/down to wanted call:

4 Pressing **right arrow** shows detailed call data:


Menu
Ctrl
O
^ Function menu
Phone setup menu
006> Traffic log >
Precharge
6 – Traffic log
Log mode : To printer
Unprinted calls : 0
Auto print limit : 1
470 SIM View Ok
Ctrl+T for Help <+U> <+I> <+O> <+P>
Only appears when log mode is set for output to printer.See next page.
Ctrl
O
P
Minutes:seconds
^
Dialed number Call start Dur.
> * # 004766844700, 01Sep 13:56, 0:01>
incoming call, 18Aug 17:08, 0:12
* # 003963221800, 15Aug 11:08, 0:05
* # 00551155053008, 03Jul 12:44, 0:11
V
470 SIM Quit
Ctrl+T for Help <+U> <+I> <+O> <+P>
: entry tagged for printout by owner
* : entry not yet printed
^ Dialed number : 004767244700
Net provider Telenor
Satellite : AOR-E
Service : Voice User : Nera
Reg. No : 1 Start : 01Sep 13:56
Printed : No Duration : 0:10:02
V Tagged : Yes Charge : 90
470 SIM Quit
Ctrl+T for Help <+U> <+I> <+O> <+P>
Appears when "Access code" is enabled. (For SIM card call – SIM Id: ABCDF)
See Advanced functions: Access control.
When call charge is enabled, the "Charge" field appears showing the cost of the viewed call.


Ref. no.
#: record printed previously. "No hash" when printed first time.
Subscriber number
Start date and time
Call duration in minutes and seconds
Port
Net service provider
Simrad MS50 user (only appears when access code is enabled)
Ref Dialed number Call start Dur. Port Net User
001 # 004767243669 980711 09:20 4:05 H.set CMC Aslaug
002 0044222534555 980711 10:56 2:33 H.set BT Bob
003 # 004722259024 980711 13:24 11:22 TEL Telenor John
004 00494088251 980711 15:46 10:05 TEL Teleglobe IDG Franz
005 # 00871765421392 980712 08:45 5:32 H.set AOR-E Charlie
006 Incoming call 980712 09:33 6:14 H.set BT Bob
007 # 00494088251 980712 10:47 9:11 TEL Teleglobe IDG Franz
008 # 0044816865701 980712 13:55 5:20 TEL BT George
009 004722259024 980712 16:09 15:44 TEL Telenor John
010 # 044222534555 980712 16:53 9:10 H.set BT Bob
Total duration is 2:05:28 (125.46 minutes)
10 records printed 98.07.12 17:34
Number of records
Duration in hours, minutes and seconds
Accumulated time in minutes and 1/100 of a minute
Note! When call charge is enabled, the duration field will be replaced by a call charge field showing the cost of each call.

Example of traffic log printout.

Traffic log settings (owner level only)

1 Open the **Traffic log** window:

Print outputs all unprinted and tagged entries. *See previous page.*

2 Select **Edit** or press **right arrow** for settings:

Scroll up/down and **Selct** at wanted output Log mode:

Auto print limit can easily be toggled between 1 and 10:

Logging of incoming calls can be enabled/disabled:

3 **View** displays the list of calls:

Scroll up/down to wanted call:

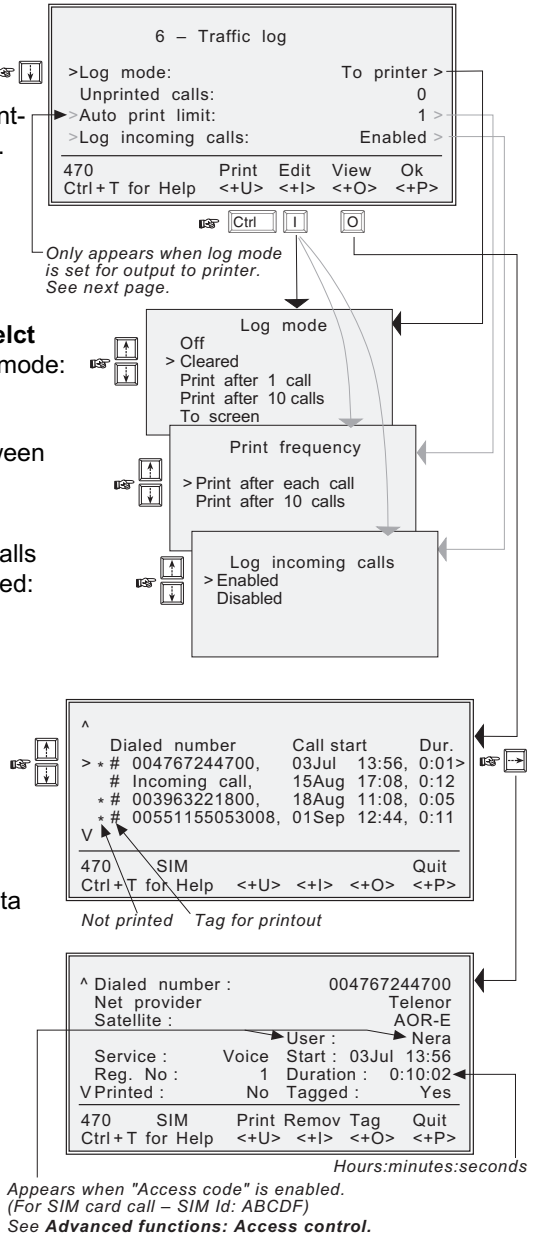
Tag tags entry: Repeat to untag.

Pressing **right arrow** shows detailed call data of selected number:

Print outputs the selected entry to the printer without header and footer.

Remove erases the entry from the log.

Quit reverts to main window.


6 – Traffic log
>Log mode: To printer >
Unprinted calls: 0
>Auto print limit: 1 >
>Log incoming calls: Enabled >
470 Print Edit View Ok
Ctrl+T for Help <+U> <+I> <+O> <+P>
Ctrl
I
O
Only appears when log mode is set for output to printer. See next page.
Log mode
Off
> Cleared
Print after 1 call
Print after 10 calls
To screen
Print frequency
> Print after each call
Print after 10 calls
Log incoming calls
> Enabled
Disabled
^
Dialed number Call start Dur.
> * # 004767244700, 03Jul 13:56, 0:01>
Incoming call, 15Aug 17:08, 0:12
* # 003963221800, 18Aug 11:08, 0:05
* # 00551155053008, 01Sep 12:44, 0:11
V
470 SIM Quit
Ctrl+T for Help <+U> <+I> <+O> <+P>
Not printed
Tag for printout
^ Dialed number : 004767244700
Net provider Telenor
Satellite : AOR-E
User : Nera
Service : Voice Start : 03Jul 13:56
Reg. No : 1 Duration : 0:10:02
V Printed : No Tagged : Yes
470 SIM Print Remov Tag Quit
Ctrl+T for Help <+U> <+I> <+O> <+P>
Hours:minutes:seconds
Appears when "Access code" is enabled.
(For SIM card call – SIM Id: ABCDF)
See Advanced functions: Access control.

General

*For use with SIM, see **"Precharge on SIM card"**.*

Simrad MS50 can be preprogrammed with a total call duration limit of up to **44640 minutes** (744 hours).

The owner stores a special telephone number under short number **00**. This allows the user to call the owner to buy more time even when having exceeded the time limit.

During a call the remaining time is displayed next to the call duration in hours and minutes (seconds for the last minute).

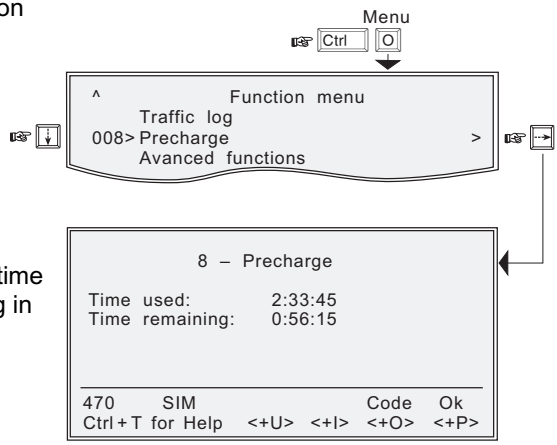
For users, the Precharge function only appears in the menu when enabled, i.e when bought time is loaded, see following pages.

Precharge readout

1 Select the function **Menu**:

2 Scroll down to **Precharge**:

3 **Selct** or **right arrow** opens the **Precharge** window which displays the time used and remaining in hours, minutes and seconds:



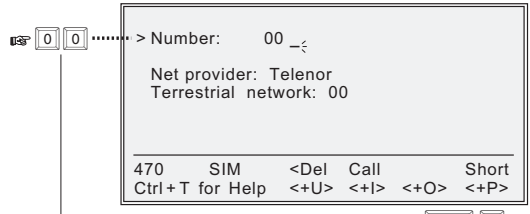
Buying more remaining time

There are three ways to load precharge time:

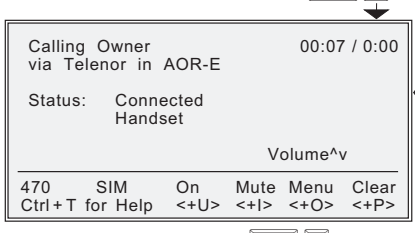
- ***Call the owner*** via short number 00 and get the buy code during the conversation.
  (Calling short number 00 can be done even if exceeding the remaining time limit and does not influence the limit value).
  See next page.
- ***Fax or mail*** the Forward ID and Index to the owner who generates the buy code and returns this by fax, mail, etc.
  See following pages.
- ***The owner*** loads the new Precharge limit into Simrad MS50.
  See following pages.

Buying time by calling the owner

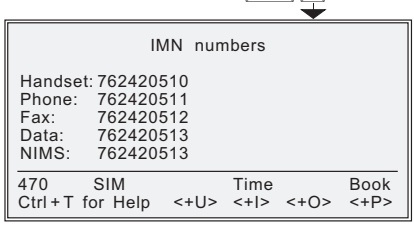
1 Dial 00:



and select **Short**:



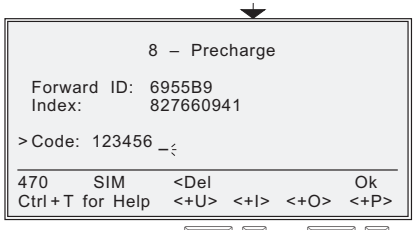
2 Selecting **Menu** displays IMN numbers:

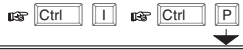


3 Selecting **Time** opens the **Precharge** window displaying the Forward ID, Index and user code entry field:

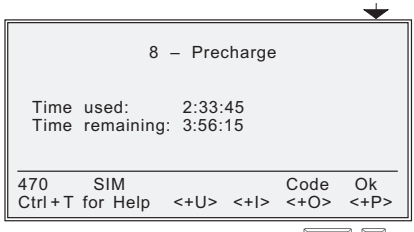
Read the Forward ID, Index and the new call duration you want to buy to the owner.

Then key in the code he reads back to you. The code contains the time information.





Ok loads the new remaining time limit:



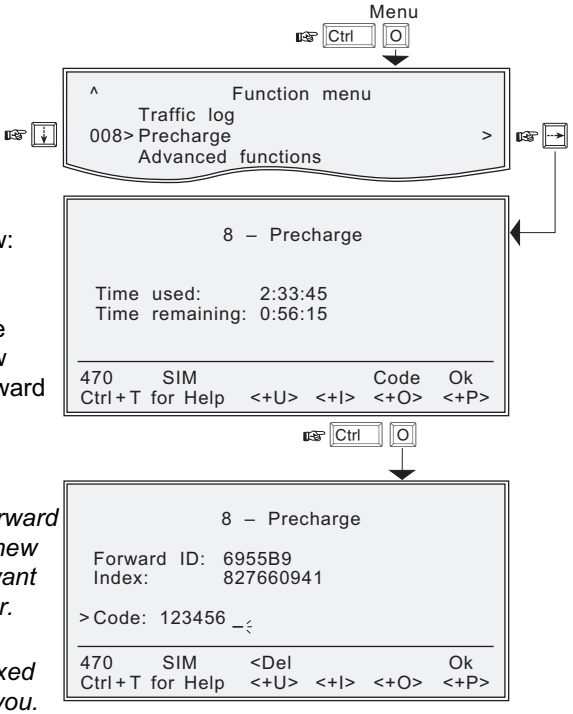
4 Select **Ok** again and then press **Esc** to return to the conversation window:

Buying time via fax or mail

1 Select the function **Menu** and scroll down to **Precharge**:

2 **Selct** or **right arrow** opens the **Precharge** window:

3 **Code** opens the **Precharge** window displaying the Forward ID, Index and user code entry field:



Fax or mail the Forward ID, Index and the new call duration you want to buy to the owner.

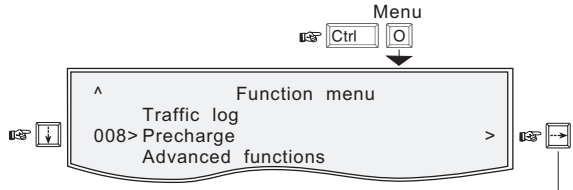
Key in the code faxed or mailed back to you. The code contains the time information.

Ok loads the new remaining time limit.

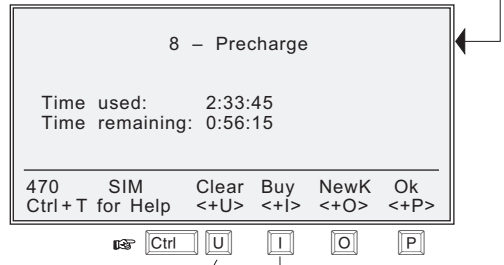
Owner loads Precharge time

*Simrad MS50 must be set in **owner level**.*

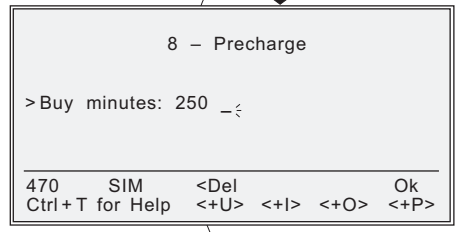
1 Select the function **Menu** and scroll down to **Precharge**:



2 **Selct** or **right arrow** opens the **Precharge** window:

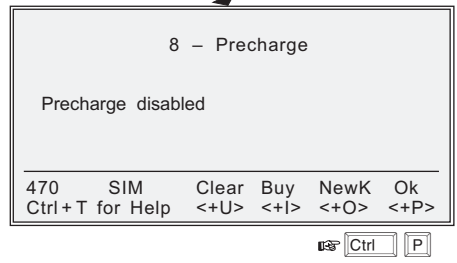


3 Selecting **Buy** allows keying in a new time limit:



4 Selecting **Clear** *disables* the Precharge function:

The Precharge menu entry is now no longer visible from user level.



Precharge is *enabled* when buying minutes.

*NB! Remember to revert to **user level**.*

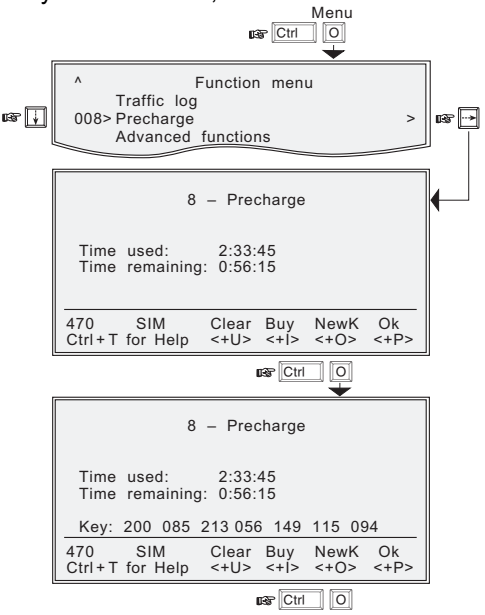
Key readout

*Simrad MS50 must be set in **owner level**.*
Using the Precharge Administrator program (QPRG 9110039) to generate a buyer's Precharge code requires both the owners password and a "key" generated by Simrad MS50, as follows:

1 Select the function **Menu** and scroll down to **Precharge**:

2 **Selct** or **right arrow** opens the **Precharge** window:

3 A new "key" is generated every time **NewK** is selected:



Precharge code handling:

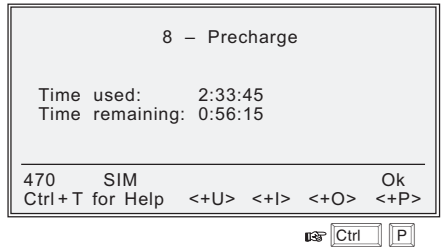
OWNER	USER
• Before a Simrad MS50 may be rented, the owner must derive its specific key (**NewK**) and store it in the data base of the Precharge Administrator program, which is used to generate more precharge minutes for the user. *See above.* At changes, the NewK must be updated in the data base. The owner also needs to register the Simrad MS50's owner password with the Precharge Administrator program.	*More call time is needed:* When wanting to buy more call time, the user conveys the **Forward ID**, **Index** and the requested **call time** to the owner:
• The owner uses the Precharge Administrator program to generate the **Precharge code** for the user on basis of the above **NewK**, owner's password and the information received from the user.	• the user calls the owner via short number 00, • or sends telefax or mail.
• The owner reads or sends the new **Precharge code** to the user.	The user keys in the new **Precharge code** provided by the owner.

Precharge on SIM card

When using SIM card, any Precharge set on the telephone itself is overridden. If no Precharge is set on the SIM card, Simrad MS50 may be used freely.

Readout on SIM

The procedure is the same as described previously for the telephone (except for the Code function which now is not required), *see* ***"Precharge readout"*** :



During a conversation, the time remaining and call duration are displayed as for calls without using SIM card.

Some SIM cards may have a prepaid option. Contact your SIM vendor for more information on how to upgrade your SIM card.

Overview

Some of the Advanced functions are accessible from **Phone OWNER LEVEL** or **CHV2 LEVEL** only.

The OWNER LEVEL and CHV2 levels are protected by passwords.

For shifting to owner/CHV2 level and assignment of password, *see **"User access"**.*

The Advanced functions include as follows:

- **Access control**:
  - Restrict dial
  - Access code
  - Restrict SIM usage
- **Satellite setup**
- **Configuration**:
  - Port configuration
  - Net service providers
  - Power conservation
  - Set diagnostics
  - Set preferred Nets *(with SIM card only)*
  - Set allowed Nets *(with SIM card only; CHV2 level or higher)*
  - Set S/A preferred Nets *(with SIM card only)*
  - Set S/A allowed Nets *(with SIM card only; CHV2 level or higher)*
  - Charge tone
- **Information available:**
  - IMN numbers
  - Misc. version Id information
  - Oscillator Compensation, Network status information } *(owner level, or in user level when diagnostics is ON, see **Configuration: Set diagnostics**)*
- **Install: Installation and debug menu**:
  - Paid functions *(owner level)*
  - Phone name setup *(owner level)*

Introduction

The following functions are available for controlling the use of Simrad MS50:

- **Restrict dial** which allows the owner to establish a Barred list of subscriber numbers that cannot be called, or set Simrad MS50 for dialing from Phone Book only.
  See next page.
- **Access code** which opens Simrad MS50 for up to 25 authorized users. *See following pages.*
- **Restrict SIM usage** which permits controlling the use of SIM card with Simrad MS50. *See following pages.*

The functions are editable in owner level only.

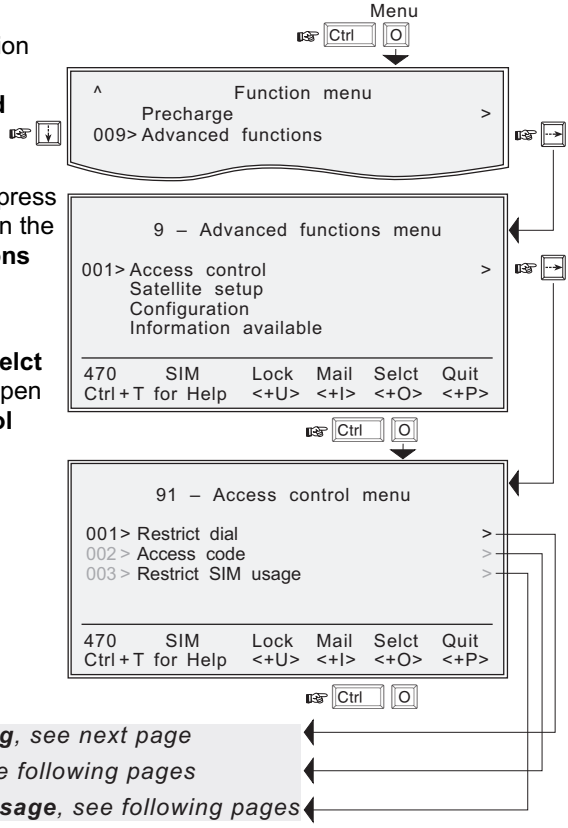
Procedure:

1 Select the function **Menu** and scroll down to **Advanced functions**:

2 Select **Selct** or press **right arrow** to open the **Advanced functions menu**:

3 Continue with **Selct** or **right arrow** to open the **Access control menu:**

allowing selection of submenus:



Restricted dialing

Simrad MS50 provides three choices of controlling calls:

- No restrictions.
- **Barred list**, which may contain up to 10 phone numbers or part of numbers that **can not** be called. F.ex. the entry "0087" in the barred list prevents all mobile-to-mobile calls.
- **Dial from Book only**, which restricts calls to the numbers in the Phone Book (in Simrad MS50). It is still possible to append, i.e. a short number entry with number field "0047" means that it is possible to dial all Norwegian numbers. When a SIM card is inserted, the SIM entries will **not** be merged with the "phone" entries.

The function is active for non-SIM operation and for one specific SIM card, *see **"Restricted SIM usage"**.* It applies to all ports of Simrad MS50. Only one of the lists can be activated at one time.

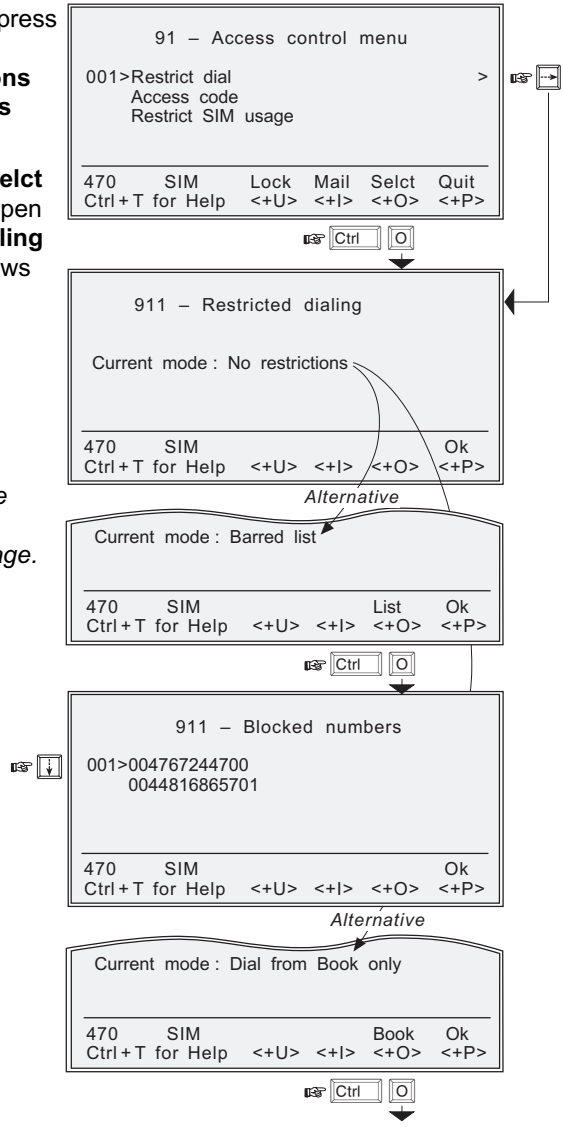
Checking the dialing setup:

1 Select **Selct** or press **right arrow** via **Advanced functions** to open the **Access control menu**:

2 Continue with **Selct** or **right arrow** to open the **Restricted dialing** window, which shows the active list:

- *No restrictions*
- *Barred list*
- *Dial from Book onl*

The list to be active is selected by the owner, see next page.



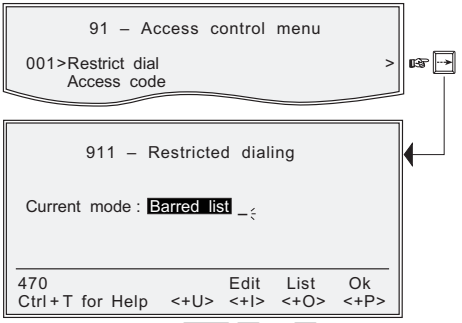
*Similar to **Phone book**, see this chapter.*

Restricted dialing setup (owner level only)

The "barred list" and the phone book are established as follows:

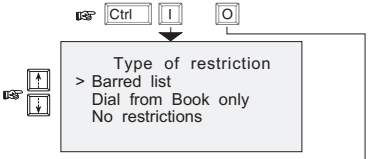
1 Select **Selct** or press **right arrow** via **Advanced functions: Access control** to open the **Restrict dial** window:

The window shows which list is currently active:

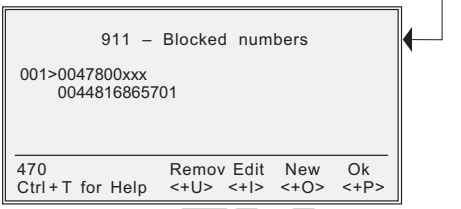


2 **Edit** allows selection of restriction mode.

Scroll up/down to select:
(**Selct** enters chosen mode)



3 Selecting **List** displays the blocked phone numbers:

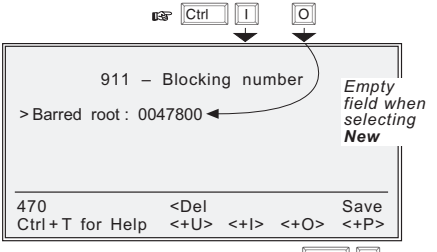


4 Selecting **Edit** allows the barred number to be modified:

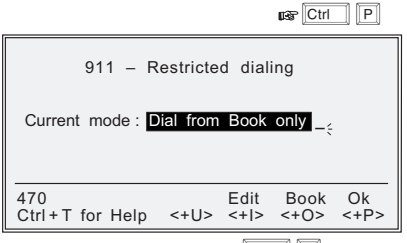
The field is empty when selecting **New** to add a phone number to the list.

Remove deletes number.

Save stores the changes.



5 When the restriction mode "Dial from Book only" is active, selecting **Book** allows short numbers to be entered:



Ctrl O

*Similar to **Phone book**, see this chapter*

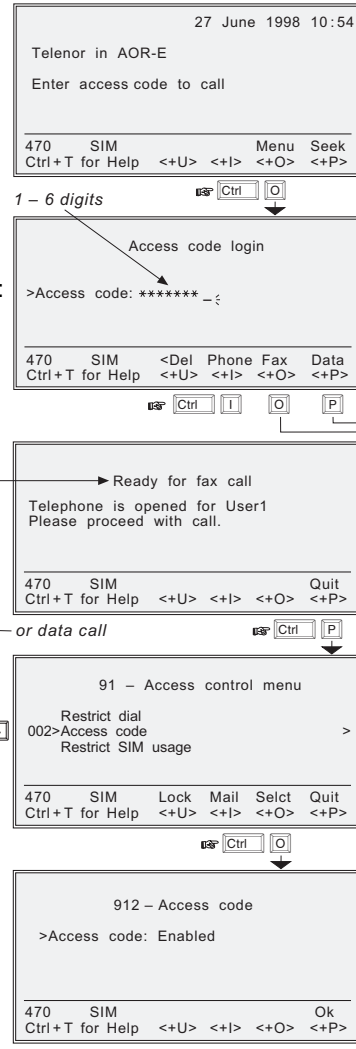
NB! Remember to revert to user level

Access code

When the access code function has been enabled, the user is prompted for a 1 - 8 digit personal code when making a call.

The code opens Simrad MS50 for one call. Up to 25 authorized users can be allocated access codes.
The function is active for non-SIM use and for one specific SIM card, *see* ***"Restricted SIM usage"***. It applies to all ports of Simrad MS50.

The access code can only be entered from owner level, see next page.



Making a call:

1 At hook-off, the **Access code login** window opens, prompting the user to enter the access code:

To make a call, see chapter 2. Operation

2 Pressing **Fax** or **Data** shows which users are allowed to make a telefax or data call:

Checking the setup:

1 Selecting **Selct** or pressing **right arrow** via **Advanced functions** opens the **Access control menu**.

2 Scroll down to **Access code**.
Using **Selct** or **right arrow** again opens the **Access code** window, which indicates whether the **Access code** function is **Enabled** or **Disabled**:

Calling from external phone

1 Lift handset; enter access code + "#" on external phone.

2 If access code is accepted, a dial tone is heard and the number to be dialed can be entered. Press "#" to initiate the call.

Access code setup (owner level only)

Access code is edited or entered as follows:

1 Selecting **Selct** or pressing **right arrow** via **Advanced functions** opens the **Access control menu**.

2 Scroll down to **Access code**.

3 Selecting **Selct** or pressing **right arrow** again opens the **Access code** window:

Enab/Disab enables/ disables the access code function.

4 **Setup** displays the list of authorized users:

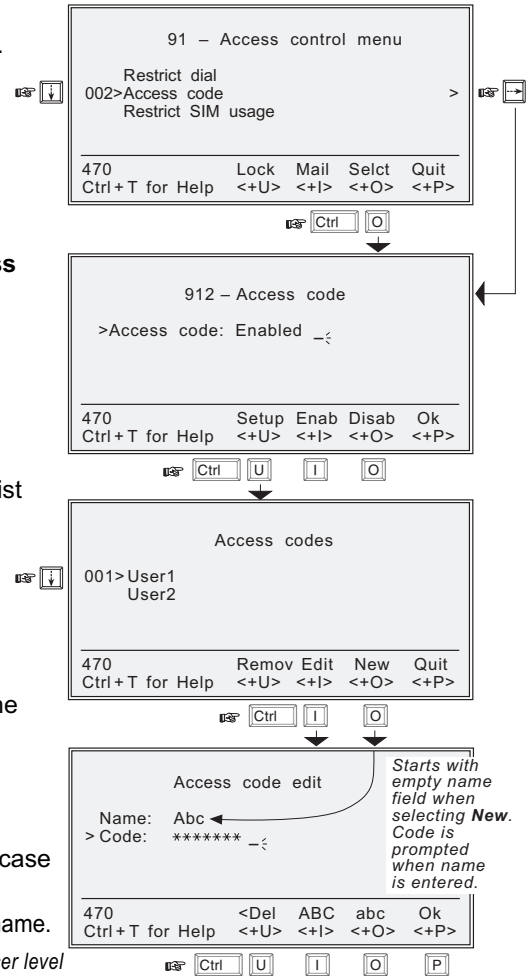
Scroll down to wanted user:

Select **Edit** to modify the code, or select **New** to add a user to the list:

Use **Del** to modify.
Select **ABC** or **abc** to enter uppercase/ lowercase letters as required.

Ok stores modified user name.

NB! Remember to revert to user level



Restricted SIM usage

Allowed SIM

Simrad MS50 can be set to operate from:

- one specific SIM card. Any other SIM users will be rejected.
- no SIM card. All SIM users will be rejected.
- any SIM card.

Restricted SIM

The restrictions "Restrict dial" and "Access code" can be set to be active for:

- one specific SIM card (in addition to non-SIM usage)
- no SIM card (only active for non-SIM usage).

The setting can only be made from owner level, see ***Setting SIM restrictions****. See also* ***Restricted dialing*** *and* ***Access code****.*

When restricted to SIM provider

The service provider can lock Simrad MS50 to a specific type of card, e.g. a "MOBIQ" SIM card. The restrictions will then be:

- any "MOBIQ" SIM card.
- one specific "MOBIQ" card.
- no SIM card at all.

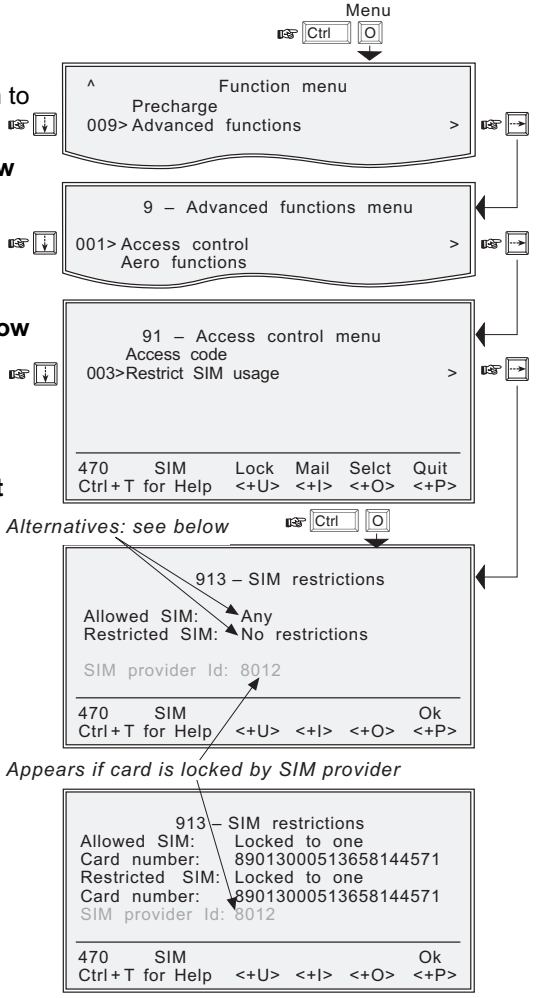
Checking SIM restrictions

1 Select the function **Menu** and scroll down to **Advanced functions**:

2 **Selct** or **right arrow** opens the **Advanced functions menu**.

3 Scroll down to **Access control** and use **Selct** or **right arrow** to open the **Access control menu**:

4 Scroll down to **Restrict SIM usage**, and use **Selct** or **right arrow** to open the **SIM restrictions** window:



Alternative restrictions:

*When **Allowed SIM** is set to:*

- **Any**, no restrictions apply
- **No SIM**, SIM cards are not accepted.
- **Locked to one**, one specific card is allowed.

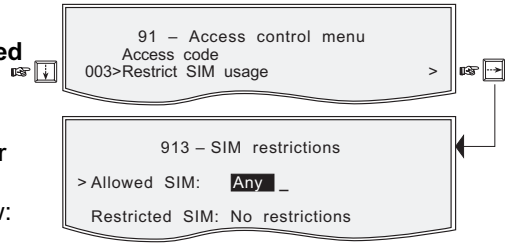
*When **Restricted SIM** is set to:*

- **No restrictions**, Access code and Restricted dial only apply for non-SIM operation.
- **Locked to one**, Access code and Restricted dial apply for non-SIM operation and operation with the specified SIM card.

Setting SIM restrictions (owner level only)

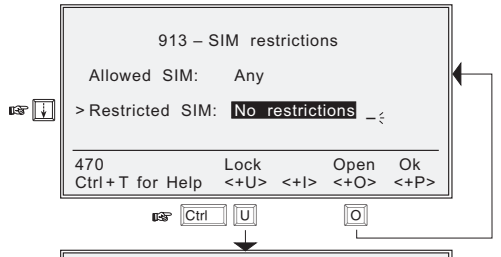
1 Select **Selct** or press **right arrow** via **Advanced functions** to open the **Access control menu**:

2 Continue with **Selct** or **right arrow** to open the **SIM restrictions** window:

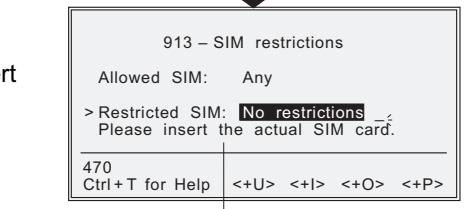


*** *Restricted SIM:***

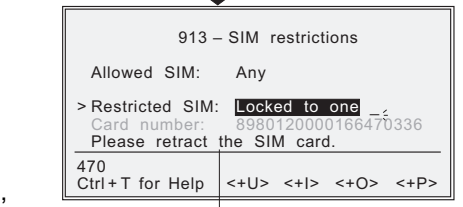
3 Scroll down to **Restricted SIM**:



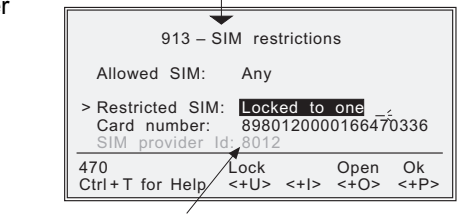
4 Select **Lock** and insert the actual SIM card:


913 – SIM restrictions
Allowed SIM: Any
> Restricted SIM: No restrictions
Please insert the actual SIM card.
470
Ctrl + T for Help <+U> <+I> <+O> <+P>

Simrad MS50 can now be operated with that specific card only:



When retracting the card, the Id of the SIM provider is displayed:


913 – SIM restrictions
Allowed SIM: Any
> Restricted SIM: Locked to one
Card number: 8980120000166470336
SIM provider Id: 8012
470 Lock Open Ok
Ctrl + T for Help <+U> <+I> <+O> <+P>

Ok stores the settings.

Appears if card is locked by SIM provider

*** *Allowed SIM:***

Follow the same procedure as for **Restricted SIM** with the marker remaining at **Allowed SIM.**

General

Allows preprogramming of **default Net service provider**, **S/A operator** (Stand Alone operator) and **terrestrial network** for each satellite region (Ocean Region).

Net service provider and terrestrial network

1 Select the function **Menu** and scroll down to **Advanced functions**:

2 Sroll down to **Satellite setup**:

Selct or **right arrow** opens the list of Satellites and Default Net providers. Scroll up/down to wanted satellite:

Selct then initiates search for the specified satellite.
(and a new spot beam selection)

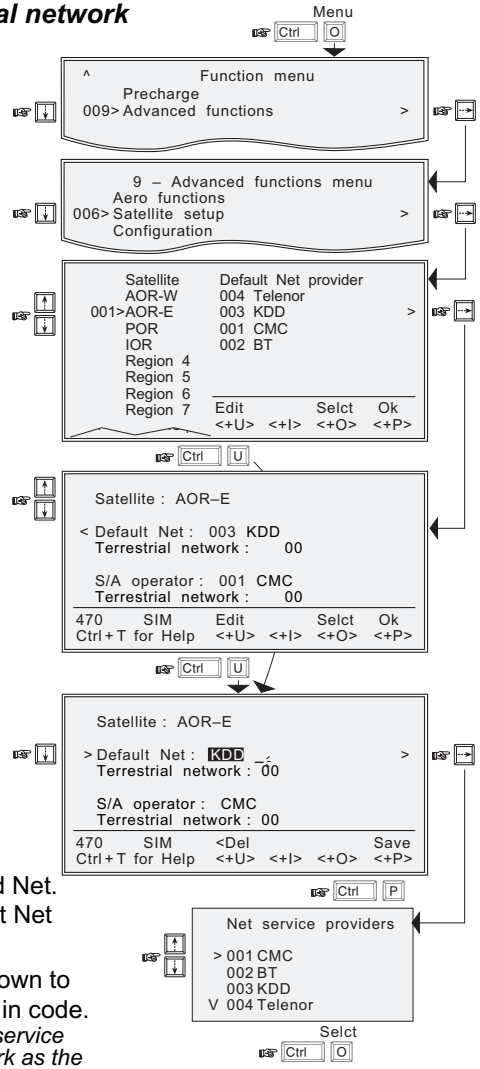
Right arrow displays satellite info:
(scroll to wanted satellite)

3 **Edit** opens the setting window for the selected satellite:

4 **Right arrow** opens the list of available Net service providers.

5 Scroll up/down to wanted Net. **Selct** enters the new default Net service provider:

6 Return to step 4, scroll down to Terrestrial network and key in code.
Save *stores the selected Net service provider and Terrestrial network as the default for that particular satellite.*



S/A operator and terrestrial network

Repeat steps 4 - 6 for selection of S/A operator and terrestrial network.

Port configuration

- Displays current configuration. *Reconfiguration can be made in "**owner**" level only (non-SIM operation).*
- With **Broadcast** On, incoming calls initiate ringing on all ports configured for voice communication.
- The secure voice function allows selected port(s) to be used with encrypted telephone. *See **appendix D – Secure voice option**.*

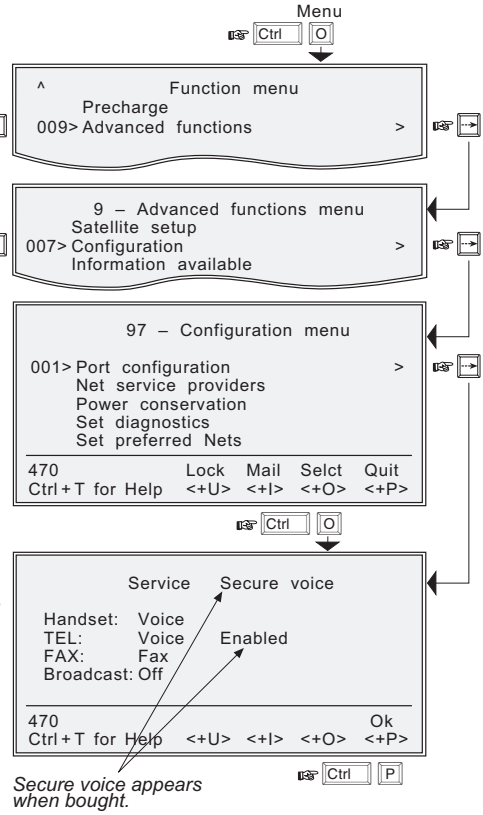
Example

1 Select the function **Menu** and scroll down to **Advanced functions**:

2 Select **Selct** or press **right arrow** and scroll down to **Configuration**:

3 **Selct** or **right arrow** opens the **Configuration menu**:

4 Activating **Selct** or **right arrow** again displays the **Port configuration** window, which shows the present service of the ports, and the incoming call response.



*For enabling/disabling of secure voice, see **appendix D**.*

*For port details, see **appendix B – Connecting up optional equipment**.*

Net service providers

Each Net service provider has a station code. The "Net service provider" window displays a list which matches the codes to the station owners. *Names can be edited in **"owner"** level (non-SIM operation).*

Example:

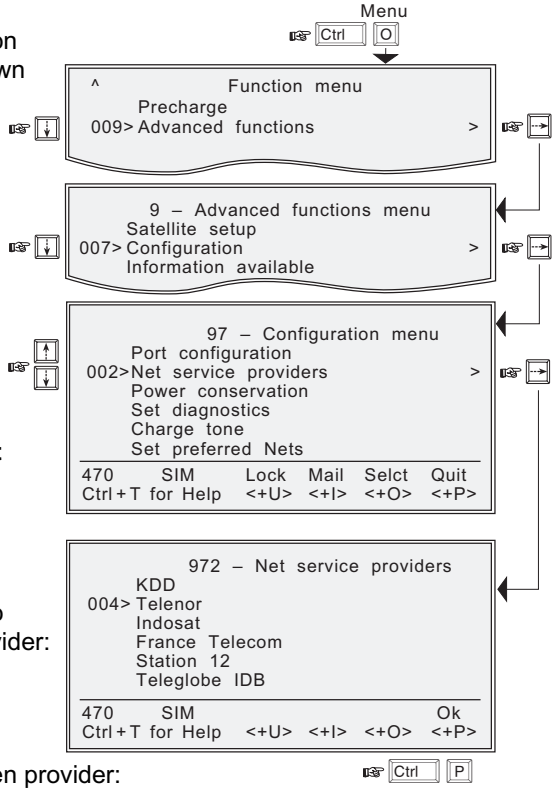
1 Select the function **Menu** and scroll down to **Advanced functions**:

2 Select **Selct** or press **right arrow** and scroll down to **Configuration**:

3 **Selct** or **right arrow** selects the **Configuration menu**:

Using **Selct** or **right arrow** again opens list of **Net service providers**:

4 Scroll up/down to wanted service provider:



Ok stores the chosen provider: Ctrl P

Power conservation

Battery power can be conserved during voice calls and/or telefax calls. The conservation can be enabled for voice and/or telefax. When set in **Auto** mode, the conservation facility is automatically enabled.
The speech quality at the remote end may be slightly impaired with power conservation enabled.

Example

1 Select the function **Menu** and scroll down to **Advanced functions**:

2 Select **Selct** or press **right arrow** and scroll down to **Configuration**:

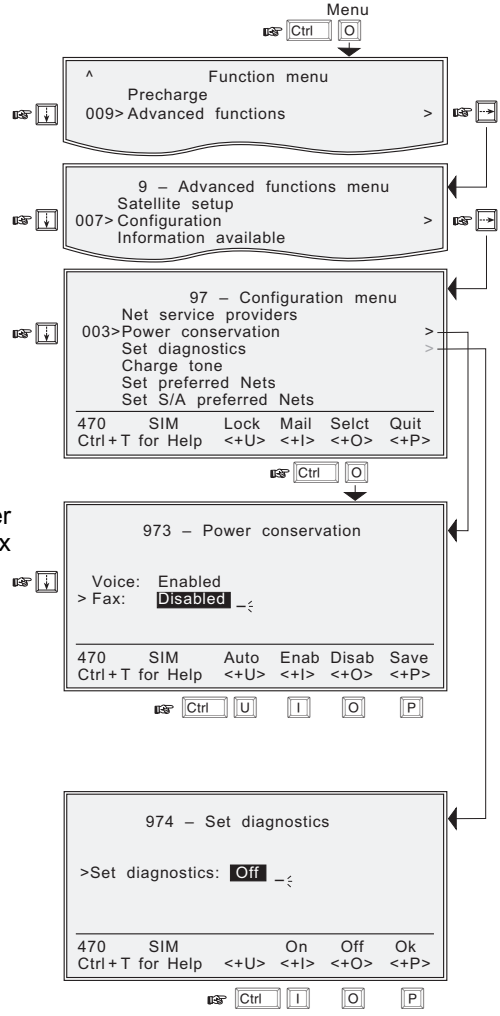
3 **Selct** or **right arrow** selects the **Configuration menu**:

4 Scroll down and use **Selct** or **right arrow** to open the **Power conservation** window:

5 **Enable**/**Disable** power reduction during voice/fax calls, as required.

Auto reduces drain automatically.

Save stores new entries or modifications:



Set diagnostics

Additional system information is displayed when diagnostics is turned **On**.
Note! Not necessary for normal telephone usage.

Storing of Preferred/Allowed Net service provider and Stand Alone operator on the SIM Card

These functions allow you to store the **preferred** and **allowed Net service provider** and **preferred** and **allowed Stand Alone operator** for each satellite region on a SIM card. *Note! The access level required to operate the functions depend on the SIM card supplier.*

Preferred Net service provider

1 Select the function **Menu** and scroll down to **Advanced functions**:

2 Select **Selct** or press **right arrow** and scroll down to **Configuration**:

3 **Selct** or **right arrow** selects the **Configuration menu**: Scroll down to **Set preferred Nets**:

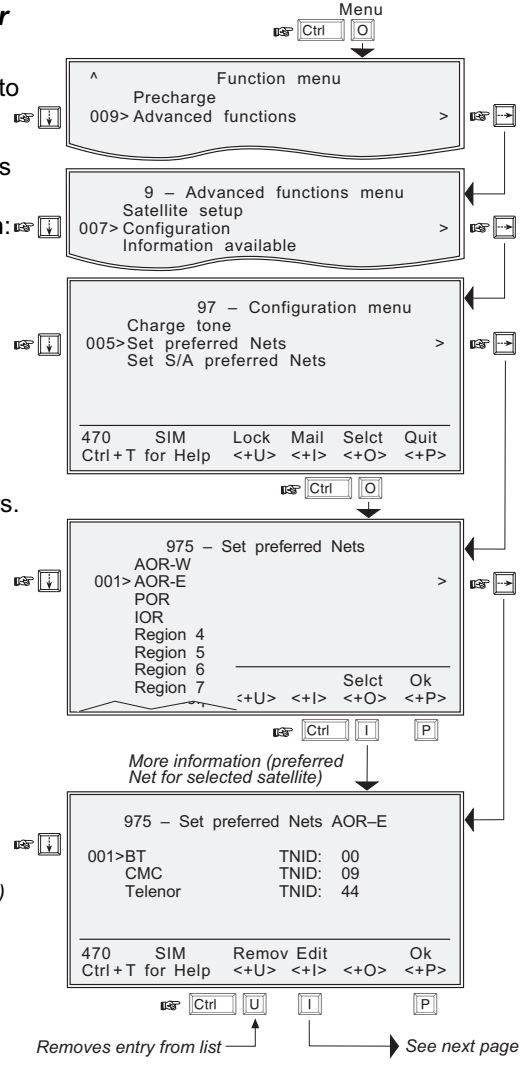
Selct or **right arrow** opens the list of **Set preferred Net** providers.

Scroll up/down to wanted satellite:

4 **Selct** or **right arrow** shows the current Net and TNID for the selected satellite:

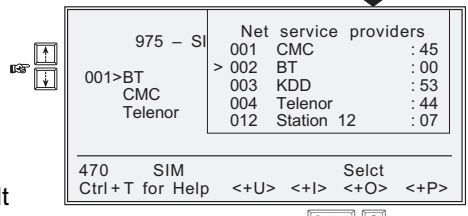
(TNID=Terrestrial Network Identification Digits)

Remove deletes the the Net entry.



5 Edit opens list of available Nets:

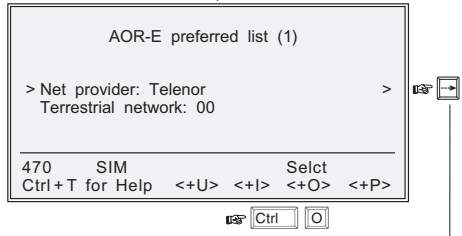
6 Scroll up/down to wanted Net:



Selct enters new default Net service provider:

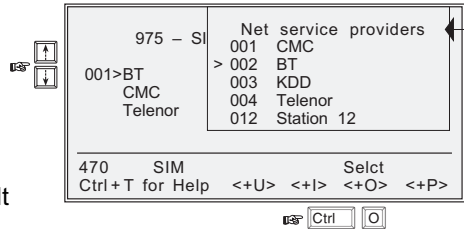
If the SIM card is not "restricted":

5b Edit opens **satellite preferred list** window:



Selct or **right arrow** opens list of available Nets.

6b Scroll up/down to wanted Net:



Selct enters new default Net service provider:

Set S/A preferred Net (Stand Alone operator)

Repeat steps 3 through 6.

Set allowed Nets / Set S/A allowed Nets

*Restricted to **"CHV2"** or higher, depending on Net service provider.*
Repeat steps 3 through 6.

Charge tone

When the charge tone function is enabled, a single frequency tone or DTMF is transmitted once the call has been established. The tone informs an external debiting system, f.ex. a pay phone (connected to the TEL port), that charging can start.
*Settings can only be made in **owner** level.*

Setup:

1 Select the function **Menu** and scroll down to **Advanced functions**:

2 Via the **Advanced functions menu**, use **Selct** or **right arrow** to open the **Configuration Menu:**

3 Scroll down to **Charge tone**, and use **Selct** or **right arrow** to open the **Charge tone** window:

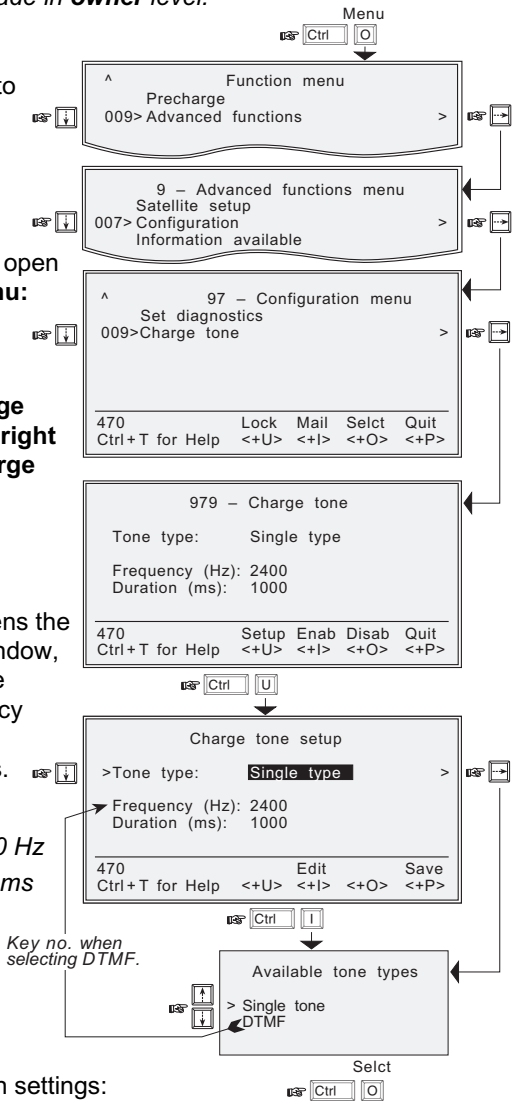
4 Selecting **Setup** opens the **Charge tone setup** window, which allows setting the required single frequency tone or DTMF, and its duration in milliseconds.

Valid settings:

Frequency: 400 - 3400 Hz

Duration: 10 - 5000 ms

DTMF key: 0 - 15



Selct enters the chosen settings:

General

The following information and facilities are provided:

- The IMN numbers assigned to Simrad MS50.
  *Access level must be set to **"owner"** or **"CHV2"** for editing of the numbers on the telephone or SIM card respectively.*
- Forward ID number which identifies your particular Simrad MS50 and SIM card if installed.
- System version numbers of the internal software programs. *See next page.*
- Restoring communication with the satellite when receiving the alarm: **Not available**, *see "Oscillator compensation" on next page. (The function only appears when "**Set diagnostics**" is **On**).*
- Network status information *(only appears when **"Set diagnostics"** is **On**, or the access level is set to **"owner"**), see next page.*

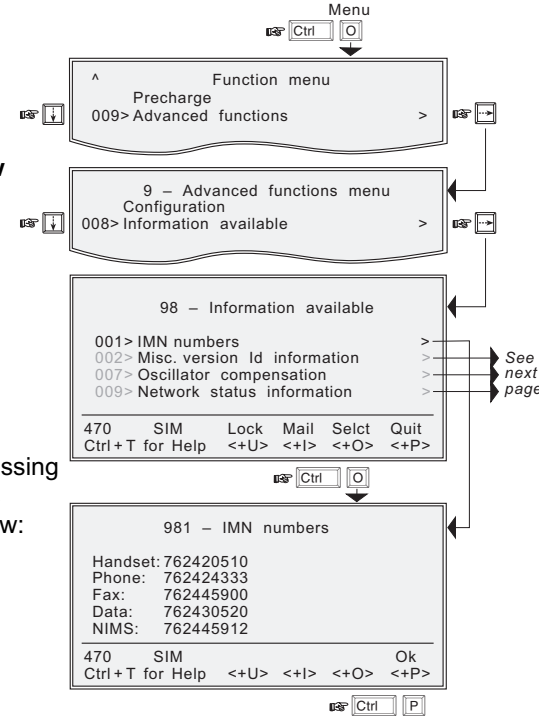
IMN numbers

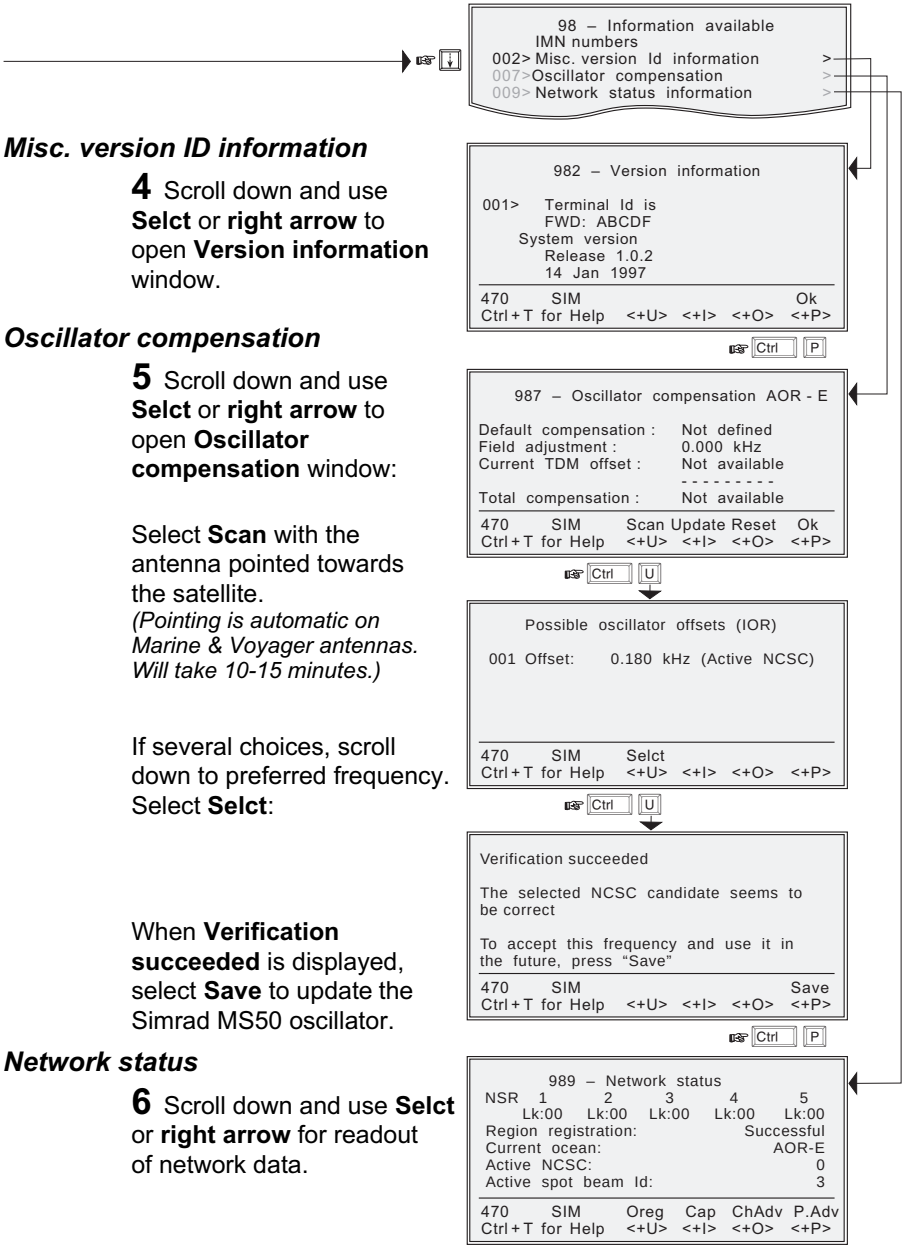
1 Select the function **Menu** and scroll down to **Advanced functions**:

Use **Selct** or **right arrow** to continue down to **Information available**:

2 **Selct** or **right arrow** opens the **Information available** window:

3 Selecting **Selct** or pressing **right arrow** again opens the **IMN numbers** window:




98 – Information available
IMN numbers
002> Misc. version Id information >
007> Oscillator compensation >
009> Network status information >
982 – Version information
001> Terminal Id is
FWD: ABCDF
System version
Release 1.0.2
14 Jan 1997
470 SIM Ok
Ctrl+T for Help <+U> <+I> <+O> <+P>
Ctrl P
987 – Oscillator compensation AOR - E
Default compensation : Not defined
Field adjustment : 0.000 kHz
Current TDM offset : Not available
Total compensation : Not available
470 SIM Scan Update Reset Ok
Ctrl+T for Help <+U> <+I> <+O> <+P>
Ctrl U
Possible oscillator offsets (IOR)
001 Offset: 0.180 kHz (Active NCSC)
470 SIM Selct
Ctrl+T for Help <+U> <+I> <+O> <+P>
Ctrl U
Verification succeeded
The selected NCSC candidate seems to be correct
To accept this frequency and use it in the future, press "Save"
470 SIM Save
Ctrl+T for Help <+U> <+I> <+O> <+P>
Ctrl P
989 – Network status
NSR 1 2 3 4 5
Lk:00 Lk:00 Lk:00 Lk:00 Lk:00
Region registration: Successful
Current ocean: AOR-E
Active NCSC: 0
Active spot beam Id: 3
470 SIM Oreg Cap ChAdv P.Adv
Ctrl+T for Help <+U> <+I> <+O> <+P>

Misc. version ID information

4 Scroll down and use **Selct** or **right arrow** to open **Version information** window.

Oscillator compensation

5 Scroll down and use **Selct** or **right arrow** to open **Oscillator compensation** window:

Select **Scan** with the antenna pointed towards the satellite.
(Pointing is automatic on Marine & Voyager antennas. Will take 10-15 minutes.)

If several choices, scroll down to preferred frequency. Select **Selct**:

When **Verification succeeded** is displayed, select **Save** to update the Simrad MS50 oscillator.

Network status

6 Scroll down and use **Selct** or **right arrow** for readout of network data.

Paid functions

Only appears in owner level (non-SIM operation).
An enhanced Simrad MS50 function is activated by entering the "Opening key" provided when purchased:

1 Select the function **Menu** and scroll down to **Advanced functions**:

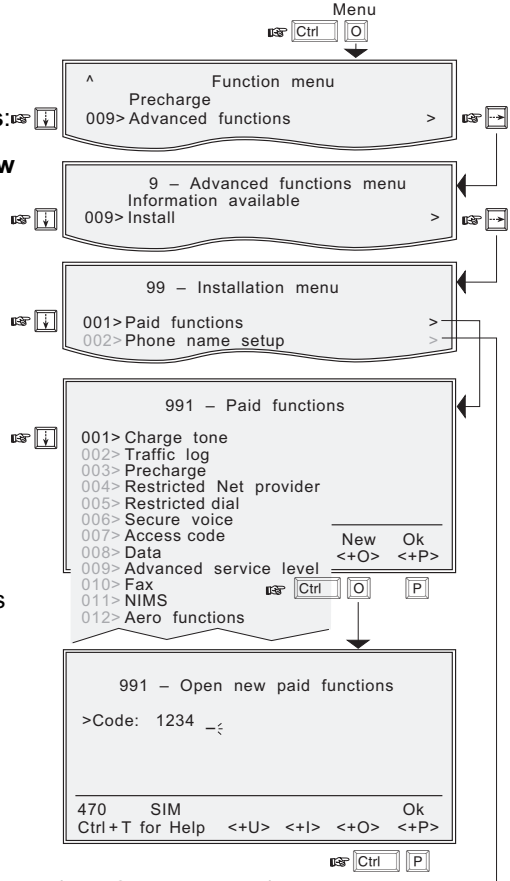
Use **Selct** or **right arrow** to continue down to **Install**:

2 **Selct** or **right arrow** opens the **Installation menu**:

3 Selecting **Selct** or pressing **right arrow** again opens the **Paid functions** list:

The list only shows purchased functions.

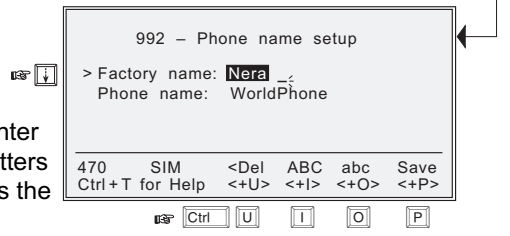
4 Selecting **New** opens the **Open new paid functions** window: Enter the "Opening key" and select **Ok**.



Phone name setup

Only appears in owner level (non-SIM operation).
Repeat steps 1 and 2 to open **Phone name setup** window:

Use **Del** to modify.
Select **ABC** or **abc** to enter uppercase/lowercase letters as required. **Save** stores the modified phone name.



Appendix A
Telephone country codes *A-1*
Service address codes *A-5*

Appendix B
Installation of Simrad MS50 ..... *B-1*
Installation of Marine Antenna *B-4*
Installation of Voyager Antenna *B-10*
Mounting of Portable Antenna *B-15*
Installation of Provident Antenna *B-18*
Optional antenna cable *B-22*

Appendix C
AT commands *C-1*
DTE interface *C-17*

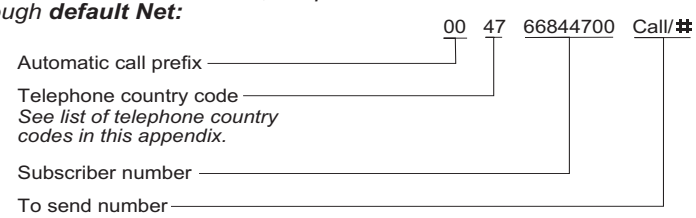
Appendix D
Secure voice (option) *D-1*
Aero functions (option) *D-2*

Appendix E
List of terms *E-1*

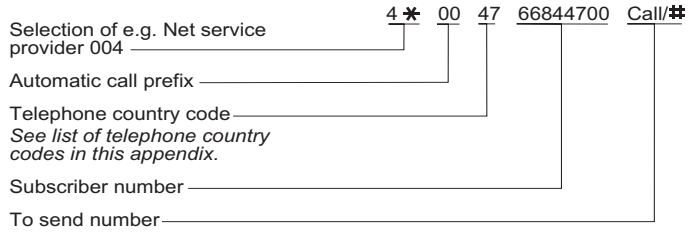
Appendix F
Troubleshooting *F-1*

Explanation with examples:

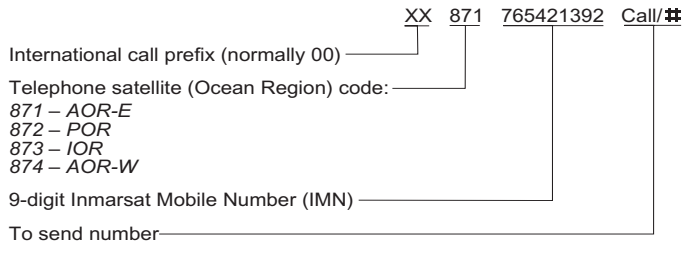
*Mobile - to - fixed subscriber, telephone call through **default Net:***


00 47 66844700 Call/#
Automatic call prefix
Telephone country code
See list of telephone country codes in this appendix.
Subscriber number
To send number

*Mobile - to - fixed subscriber, telephone call through **selected Net service provider:***


4 * 00 47 66844700 Call/#
Selection of e.g. Net service provider 004
Automatic call prefix
Telephone country code
See list of telephone country codes in this appendix.
Subscriber number
To send number

Fixed/mobile - to - Mobile telephone call:



Note! Some Net service providers support the common Ocean Region access no. 870, which connects the call to the dialed Simrad MS50 regardless of the Ocean Region the user currently communicates through.

Appendix A – Telephone country codes cont'd

Afghanistan (Islamic State of) 93
Albania (Republic of) 355
Algeria (People's Democratic Republic of) 21 b1)
American Samoa 684
Angola (Republic of) 244
Anguilla ..... 1 a)
Antigua and Barbuda ..... 2 a)
Argentine Republic 54
Armenia (Republic of) ..... 374 d)
Aruba 297
Ascension 247
Atlantic Ocean East Region (AOR-E) (Inmarsat) 871
Atlantic Ocean West Region (AOR-W) (Inmarsat) ... 874
Australia 61
Australian External Territories 672
Austria 43
Azerbaijani Republic 994

Bahamas (Commonwealth of the) ..... 1 a)
Bahrain (State of) 973
Bangladesh (People's Republic of) 380
Barbados ..... 1 a)
Belarus (Republic of) ..... 375 d)
Belgium 32
Belize 501
Benin (Republic of) 223
Bermuda ..... 1 a)
Bhutan (Kingdom of) 975
Bolivia (Republic of) 591
Bosnia and Herzegovina (Republic of) 387
Botswana (Republic of) 267
Brazil (Federative Republic of) 55
British Virgin Islands ..... 1 a)
Brunei Darussalam 673
Bulgaria (Republic of) 859
Burkina Faso 226
Burundi (Republic of) 257

Cambodia 355
Cameroon (Republic of) 237
Canada ..... 1 a)
Cape Verde (Republic of) 238
Cayman Islands ..... 1 a)
Central African Republic 236
Chad (Republic of) 235
Chile 56
China (People's Republic of) ..... 86 e)
Colombia (Republic of) 57
Comoros (Islamic Federal Republic of the) .. 269
Congo (Republic of the) 242
Cook Islands 682
Costa Rica 506
Croatia (Republic of) 385
Cuba 53
Cyprus (Republic of) 357
Czech Republic ..... 420 c)

Democratic People's Republic of Korea 850
Denmark 45
Diego Garda 246
Djibouti (Republic of) 253
Dominican Republic ..... 1 a)

Ecuador 593
Egypt (Arab Republic of) 20
El Salvador (Republic of) 503
Equatorial Guinea (Republic of) 240
Eritrea 291
Estonia (Republic of) 372
Ethiopia 251

Falkland Islands (Malvinas) 500
Faroe Islands (Denmark) 298
Fiji (Republic of) 679
Finland 358
France ..... 33 c)
French Poiynesia 68

Gabonese Republic 241
Gambia (Republic of the) 220
Georgia (Republic of) ..... 7 d)
Germany (Federal Republic of) 49
Ghana 233
Gibraltar 350
Greece 30
Greenland (Denmark) 299
Grenada ..... 1 a)
Guadeloupe (French Department of) 590
Guam 671
Guatemala (Republic of) 502
Guiana (French Department of) 594
Guinea (Republic of) 224
Guinea-Bissau (Republic of) 245
Guyana 592

Haiti (Republic of) 509
Honduras (Republic of) 504
Hongkong 852
Hungary (Republic of) 36

Iceland 354
India (Republic of) 91
Indian Ocean Region (IOR)(Inmarsat) 873
Indonesia (Republic of) 62
Iran (Islamic Republic of) 98
Iraq (Republic of) 964

Appendix A – Telephone country codes cont'd

Ireland 353
Israel (State of) 972
Italy 39
Ivory Cost (Republic of) 225

Jamaica ..... 1 a)
Japan 81
Jordan (Hashemite Kingdom of) 962

Kazakhstan (Republic of) ..... 7 d)
Kenya (Republic of) 254
Kiribati Republic of) 686
Kuwait (State of) 965
Kyrgyzstan (Republic of) ..... 996 d)

Lao People's Democratic Republic 856
Latvia (Republic of) 371
Lebanon 961
Lesotho (Kingdom of) 266
Liberia (Republic of) 231
Libya (Socialist People's Ubyan Arab Jamahiriya) ... 21 b2)
Liechtenstein (Principality of) ..... 41 c)
Lithuania (Republic of) 370
Luxembourg 352

Macau 853
Macedonia (the former Yugoslav Republic of) .. 389
Madagascar (Republic of) 261
Malawi 265
Malaysia 60
Maldives (Republic of) 960
Mali (Republic of) 223
Malta 356
Marshall Islands (Republic of the) 692
Martinique (French Department of) 596
Mauritania (Islamic Republic of) 222
Mauritius (Republic of) 230
Mexico 52
Micronesia (Federated States of) 691
Moldova (Republic of) 373
Monaco ..... 337 c)
Mongolia 976
Montserrat ..... 1 a)
Morocco (Kingdom of) 21 b3)
Mozambique (Republic of) 258
Myanmar (Union of) 95

Namibia (Republic of) 264
Nauru (Republic of) 674
Nepal 977
Netherlands Antilles 599
Netherlands (Kingdom of the) 31
New Caledonia 687
New Zealand 64
Nicaragua 505
Niger (Republic of the) 227
Nigeria (Federal Republic of) 234
Niue 683
Northern Mariana Islands (Commonwealth of the) .. 670
Norway 47

Oman (Sultanate of) 968

Pacific Ocean Region (POR)(Inmarsat) 872
Pakistan (Islamic Republic of) 92
Palau (Republic of) 680
Panama (Republic of) 507
Papua New Guinea 675
Paraguay (Republic of) 595
Peru 51
Philippines (Republic of the) 63
Poland (Republic of) 48
Portugal 351

Qatar (State of) 974

Reunion (French Department of) 262
Romania 40
Russian Federation ..... 7 d)
Rwandese Republic 250

Saint Vincent and the Grenadines ..... 1 a)
Saint Luda ..... 1 a)
Saint Kitts and Nevis ..... 1 a)
Saint Helena 290
Saint Pierre and Miquelon (French Department of) . 508
San Marino (Republic of) 378
Sao Tome and Principe (Democratic Repulic of) 239
Saudi Arabia (Kingdom of) 966
Senegal (Republic of) 221
Seychelles (Republic of) 248
Sierra Leone 232
Singapore (Republic of) 65
Slovak Republic ..... 421 c)
Slovenia (Republic of) 386
Solomon Islands 677
Somali Democratic Republic 252
South Africa (Republic of) 27
Spain 34
Sri Lanka (Democratic Socialist Republic of) . 94
Sudan (Republic of the) 249
Suriname (Republic of) 597
Swaziland (Kingdom of) 268
Sweden 46
Switzerland (Confederation of) ..... 41 c)
Syrian Arab Republic 963

Appendix A – Telephone country codes cont'd

Tajikistan (Republic of) ..... 7 d)
Tanzania (United Republic of) 255
Thailand 66
Togolese Republic 228
Tokelau 690
Tonga (Kingdom of) 676
Trinidad and Tobago (Code actually used: +1) .. 296
Tunisia 21 b4)
Turkey 90
Turkmenistan ..... 993 d)
Turks arid Caicos Islands ..... 1 a)
Tuvalu 688

Uganda (Republic of) 256
Ukraine ..... 380 d)
United Arab Emirates ..... 971 h)
United States of America, + Puerto Rico, Virgin Islands ..... 1 a)
United Kingdom of Great Britain and Northern Ireland 44
Uruguay (Eastern Republic of) 598
Uzbekistan (Republic of) ..... 7 d)

Vanuatu (Republic of) 678
Vatican City State 379
Venezuela (Republic of) 58
Viet Nam (Socialist Republic of) 84

Wallis and Futuna 681
Western Samoa (Independent State of) 685

Yemen (Republic of) 967
Yugoslavia (Federal Republic of) 381

Zaire (Republic of) 243
Zambia (Republic of) 260
Zanzibar (Tanzania) 259
Zimbabwe (Republic of) 263

Notes

a): Integrated numbering area.
b1): Integrated numbering area with subdivisions: 213, 214 and 215 for Algeria.
b2): Integrated numbering area with subdivisions: 218 and 219 for Libya.
b3): Integrated numbering area with subdivisions: 210, 211, 212 (212 in service) for Morocco.
b4): Integrated numbering area with subdivisions: 216, 217 for Tunisia.
c): Integrated numbering plan.
d): Will form part of numbering zone 7.
e): Code 866 has been allocated to the province of Taiwan.
h:) United Arab Emirates (U.A.E.) incl: Abu Dhabi, AJmna, Dubai, Fujeirah, Ras Al, Khaimah, Sharjah, Umm al Oaiwain.

Appendix A – Service address codes

Abbreviated dialing 23
Access to maritime packet assembly/ disassembly 20
Administration specialized use ..... 6(X)
Automatic 00
Automatic line test 91

Collect call 35
Credit card call 36
Commissioning tests 92

Databases 70

Faxmail 26

International outgoing operator 11
International information service 12

Mail retrieval 57
Maritime assistance 39
Maritime enquiries 31
Medical advice 32
Medical assistance 38
Meteorological reports 41

Navigational hazards and warnings 42
National operator 13
National information service 14

Person-to-person call 34

Ship position reports 43

Technical assistance (on network) 33
Telephone call booking 17
Time and duration 37
Time announcement 50

General

Simrad MS50 is provided with holes for mounting on desktop or bulkhead. The same mounting arrangement and dimensions apply to Antenna Power Supply delivered with the Marine Antenna and Voyager Antenna.

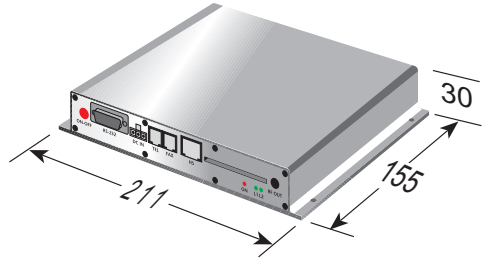
Source of energy

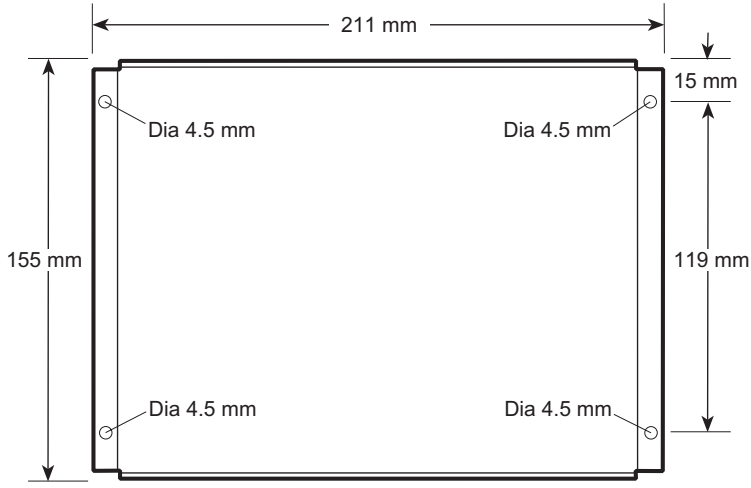
The equipment operates from 10 to 32 Volts DC from any 12V or 24V battery.
Power Supply for operation from 230 VAC may be supplied as an option, QBMJ 911004.

Outline dimensions and weight

Simrad MS50
QUFC 911947
Weight: 1 kg

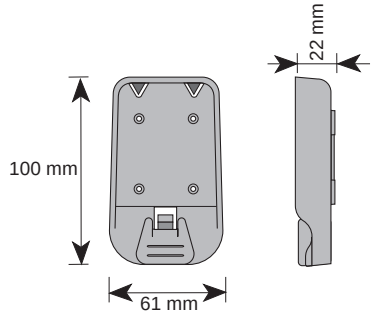
Same outline dimensions apply to:
Antenna Power Supply
QUFC 911951
Weight: 1 kg





Bracket for optional Display Handset
QSXA 911394

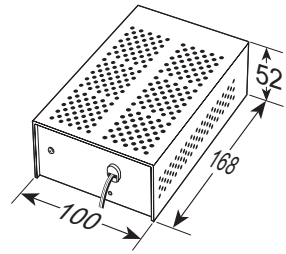
Weight: 0.06 kg



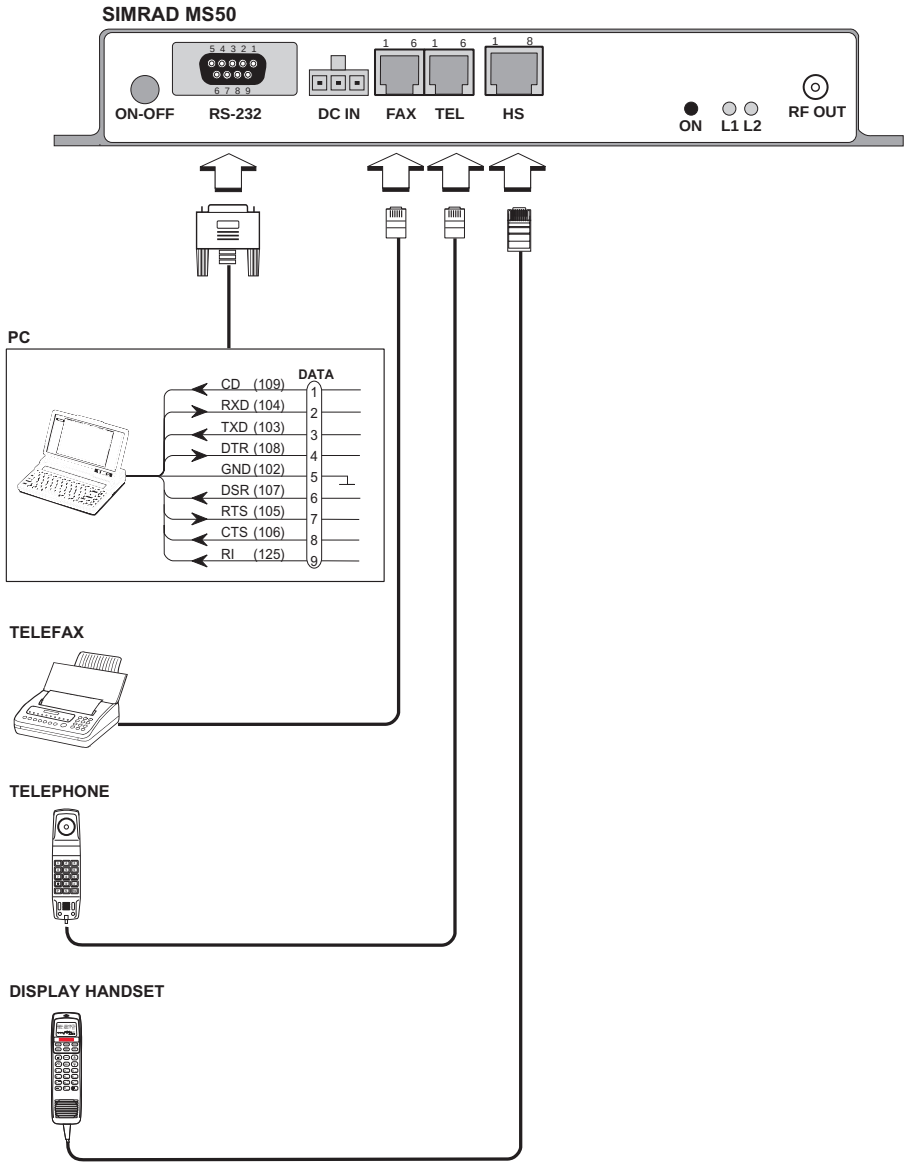
Optional 230 VAC Power Supply
QBMJ 911004

Mains cable: QRPM 911017/1500

Weight: 0.65 kg



Connecting up optional equipment



Appendix B – Installation of *Marine Antenna*

Location

Avoid obstructions

The Antenna ideally requires a free line of sight in all directions above an elevation angle of 5 degrees.

Any obstruction will cause blind sectors, and may result in degradation or even loss of communication with the satellite.

Degrading of the communication is only completely avoided by placing the antenna higher than any obstructions. This is often not feasible and a compromise must be made to reduce the number of blind sectors.

The degree of communication degradation depends on the size of the obstructions; the distance to them must therefore be considered.

Preferably, all obstructions within 3 m of the antenna should be avoided. Obstructions less than 15 cm in diameter can be ignored beyond this distance.

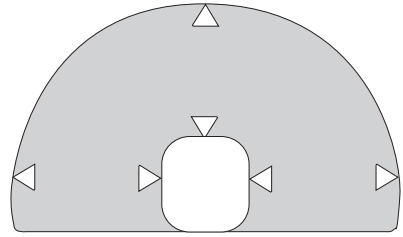
Installation of Antenna Unit on top of mast must be avoided.

Compass safe distance

For installation on Norwegian or British vessels, the Antenna Unit should be located at a distance of at least 1.0 metre from the magnetic steering compass. Be aware that requirements may vary from one country to another.

Radiation precautions

Persons should not be near the antenna when transmitting for periods of more than 1 hour per day.



MICROWAVE RADIATION !
NO ADMITTANCE WITHIN 1 M

Avoid interference

The Antenna Unit should be separated as far as possible from other communication and navigation antennas onboard such as Radar, Satellite, HF/VHF/UHF, GPS antennas etc.. Preferably by at least 5 metres.

The Antenna Unit should be installed so that severe vibration and shock are avoided. If installed on top of a pipe or signal/radar mast, the mast must be supported by stays.

The equipment is supplied with gasket and a flange for mounting of the Antenna Unit on top of a 42.4 mm outer diameter pipe.

Other installation bracket is optional.

Coax Cable

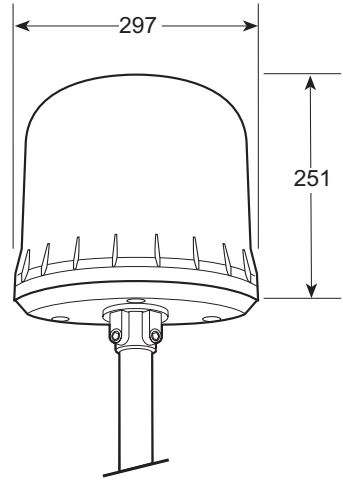
A 12 metre coaxial cable type RG-223 (QRPM 911084-12000) is supplied as standard.
*For greater lengths, see "**Optional antenna cable**".*

The coax cable should be secured by laying the cable in a tube and/ or by fastening the cable to avoid damage.

Outline dimensions

Antenna Unit
QUFF 911904
(less mounting pipe)

Weight: 3.8 kg



Antenna Power Supply:
See page B-1

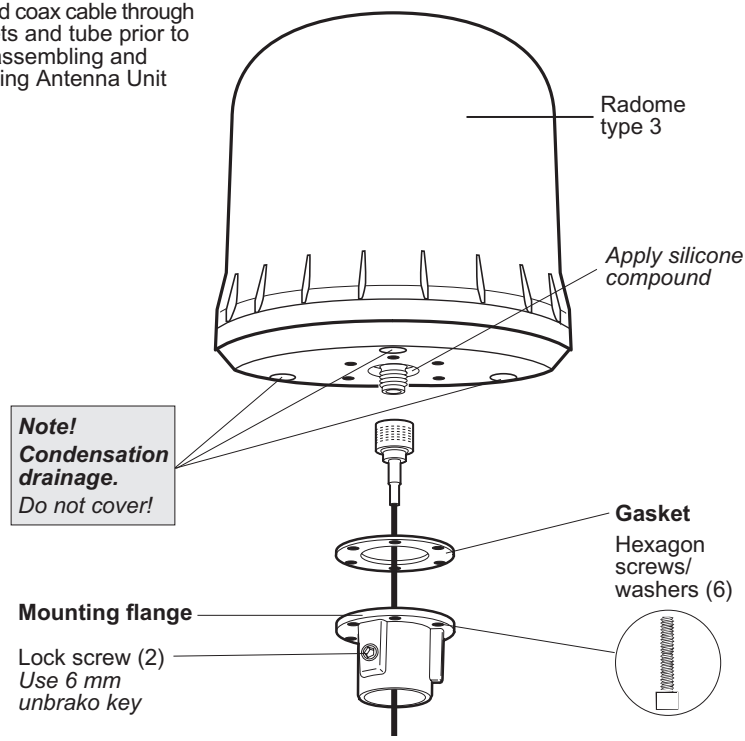
Note! *The antenna has been delivered with 3 different types of radomes. The latest version (type 3) is mounted as illustrated on page B-6.*

The earlier versions (type 1 and 2) are mounted as shown on page B-8. Be aware of the condensation drainage through the area around the coax connector for these versions, see illustration.

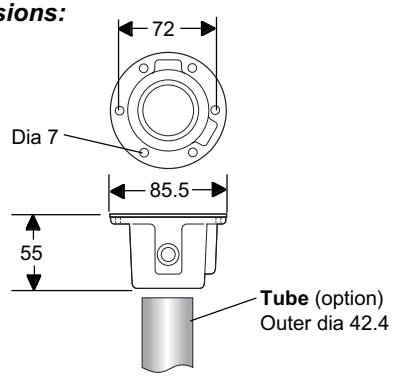
Mounting the Antenna Unit with radome type 3

Procedure:

Thread coax cable through sockets and tube prior to final assembling and installing Antenna Unit

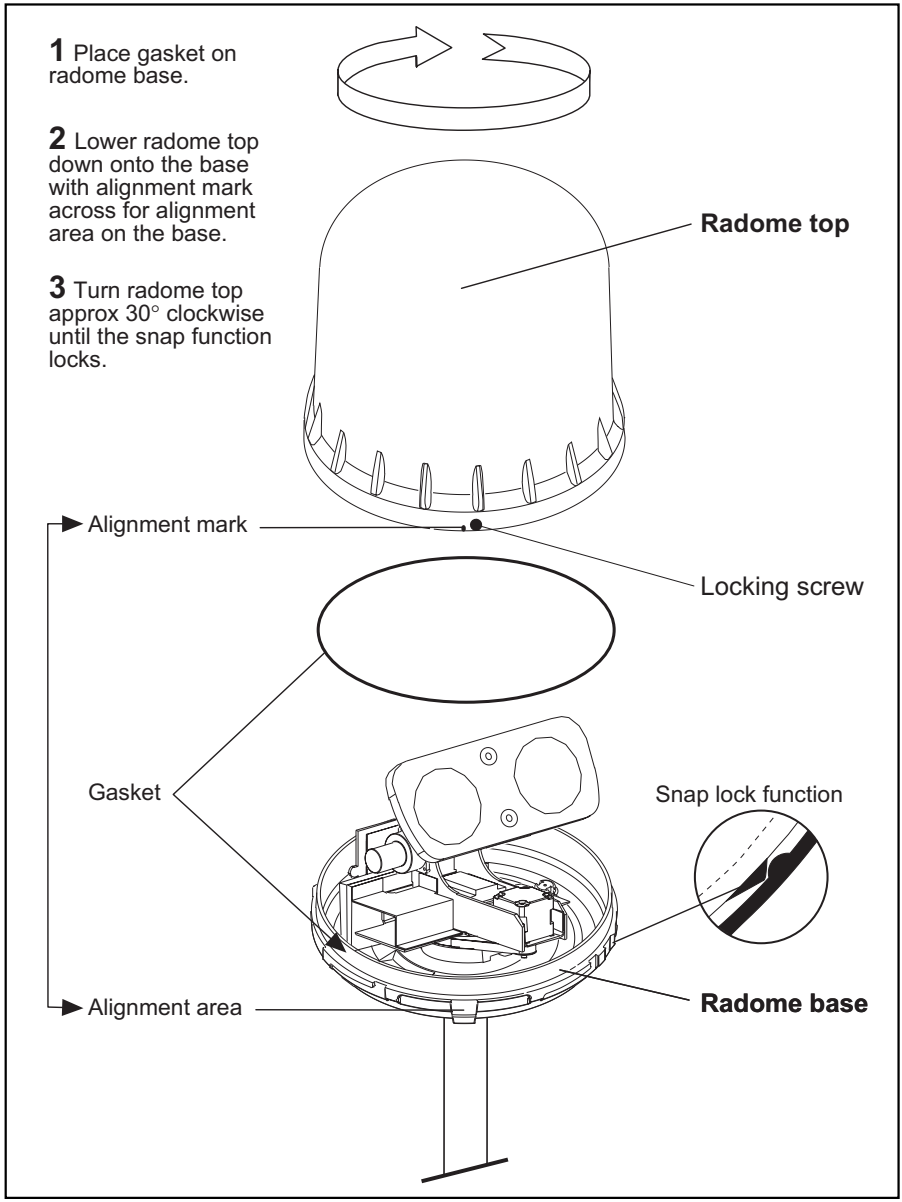


Mounting flange dimensions:



DIMENSIONS IN MILLIMETRES

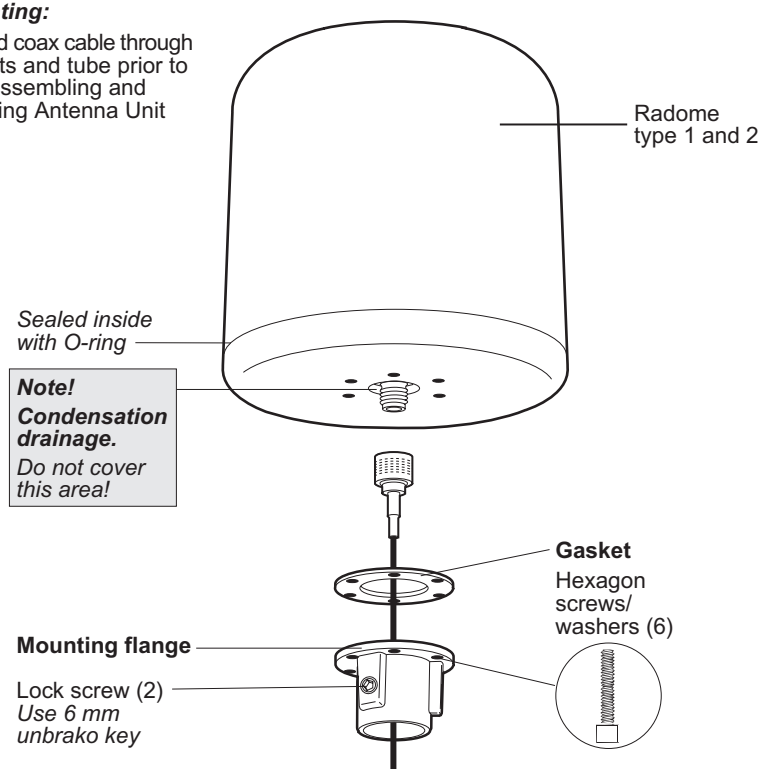
Mounting the radome top of radome type 3


1 Place gasket on radome base.
2 Lower radome top down onto the base with alignment mark across for alignment area on the base.
3 Turn radome top approx 30° clockwise until the snap function locks.
Radome top
Alignment mark
Locking screw
Gasket
Snap lock function
Alignment area
Radome base

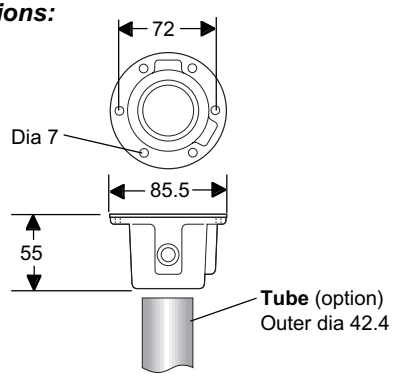
Mounting the Antenna Unit with radome type 1 and 2

Mounting:

Thread coax cable through sockets and tube prior to final assembling and installing Antenna Unit

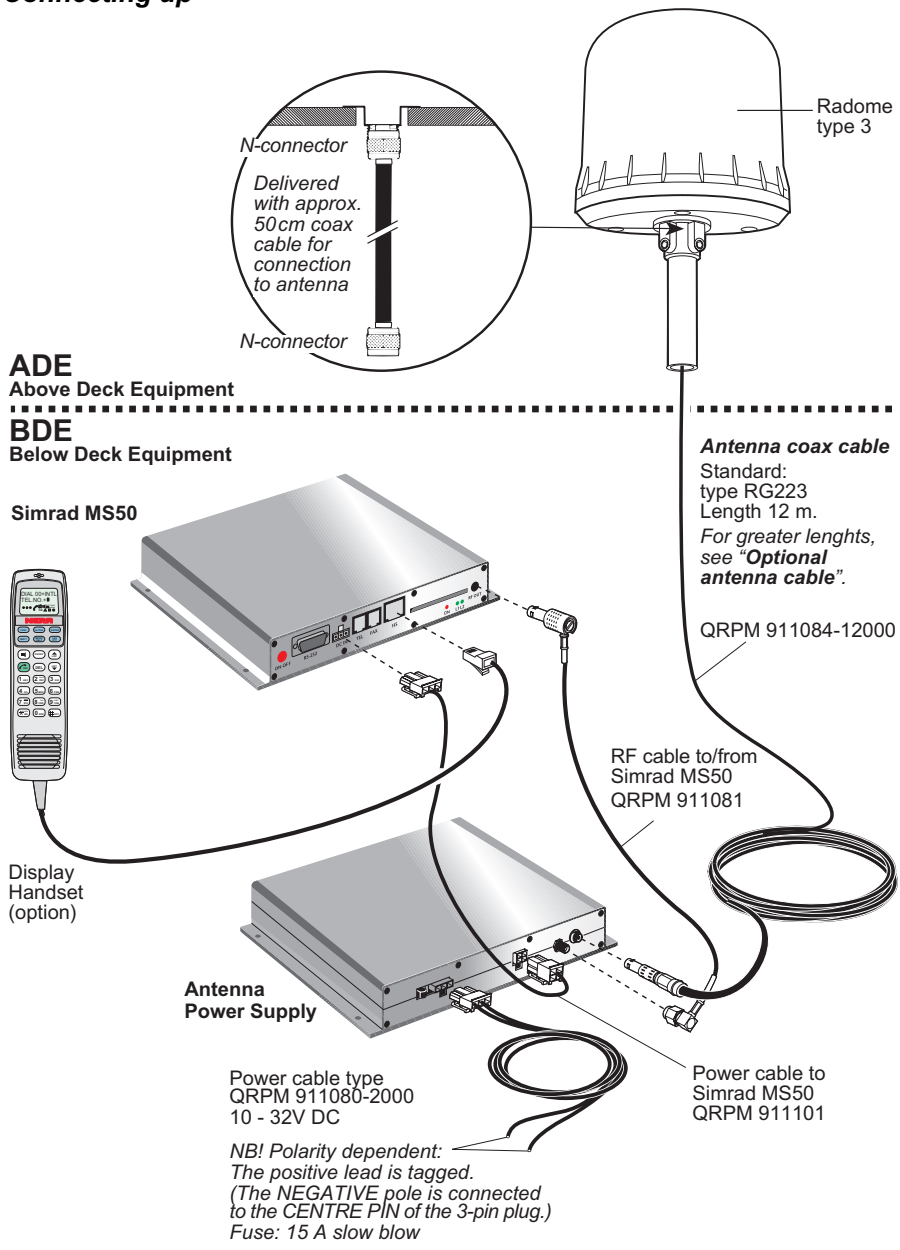


Mounting flange dimensions:



DIMENSIONS IN MILLIMETRES

Connecting up



Appendix B – Installation of *Voyager Antenna*

General

The Antenna Unit should be installed so that severe vibration and shock are avoided.
The equipment is supplied with a magnetic mounting bracket for installation on cars with magnetic-holding roof top.

Mounting option:
Load Carrier Base Assembly for installation on cars with non-magnetic roof material, or for installation on trains.
See illustration on next page.

Coax cable

A 5 metre coaxial cable type GO2232D (QRPM 911086-5000) is supplied as standard.
*For greater lengths, see "**Optional antenna cable**".*

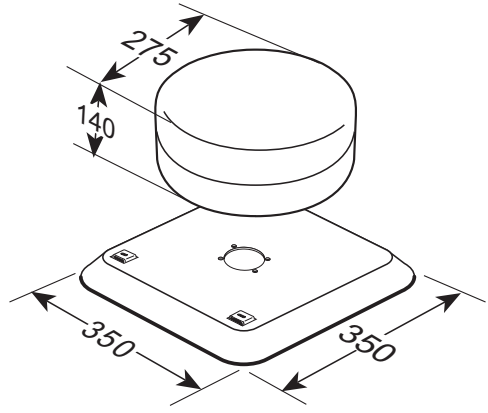
Source of energy

The equipment operates from 10 to 32 Volts DC from any 12V or 24V battery.

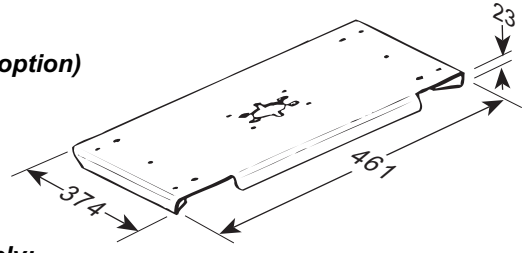
Outline dimensions and weight

Antenna Unit
QUFF 911905

Weight: 3.0 kg



Load carrier mount (option)
QSXA 811990



Antenna Power Supply:
See page B-1

Mounting on magnetic-holding surface

The Antenna Unit may be attached to the roof top with a magnetic plate inside the antenna mounting bracket. On a flat, clean metal surface the antenna will stay in place at highway speeds up to 150 km/hour.

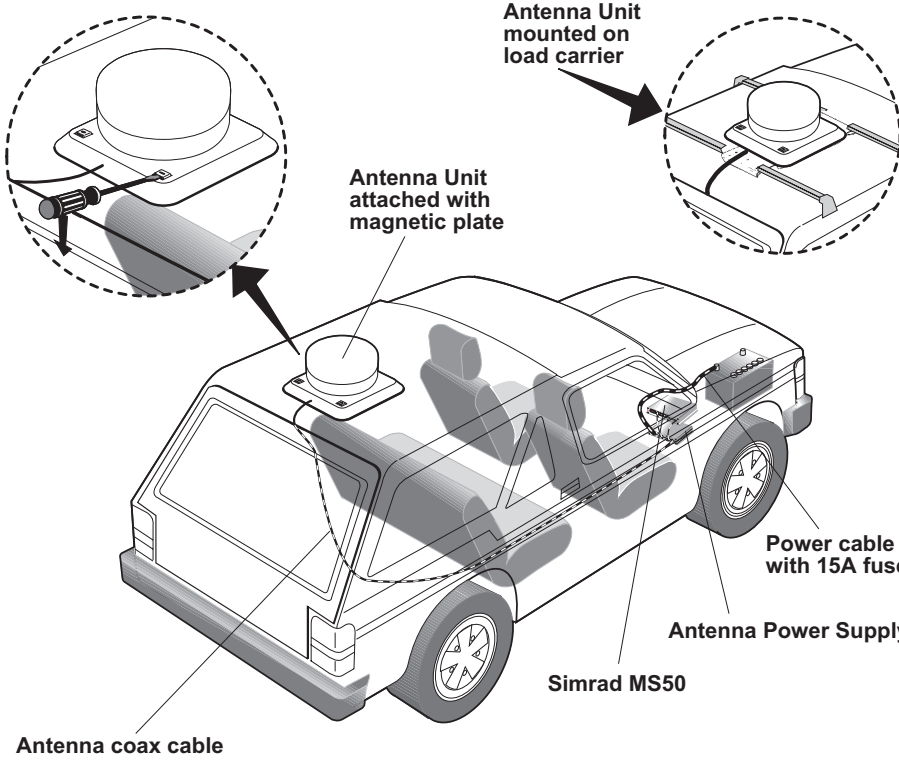
Note! A protection plate is supplied to keep the magnetic plate clean during shipment of the equipment. Remove the protection plate from the magnetic plate prior to attaching the Antenna Unit.

See "Assembling the Antenna Unit for magnetic mount".

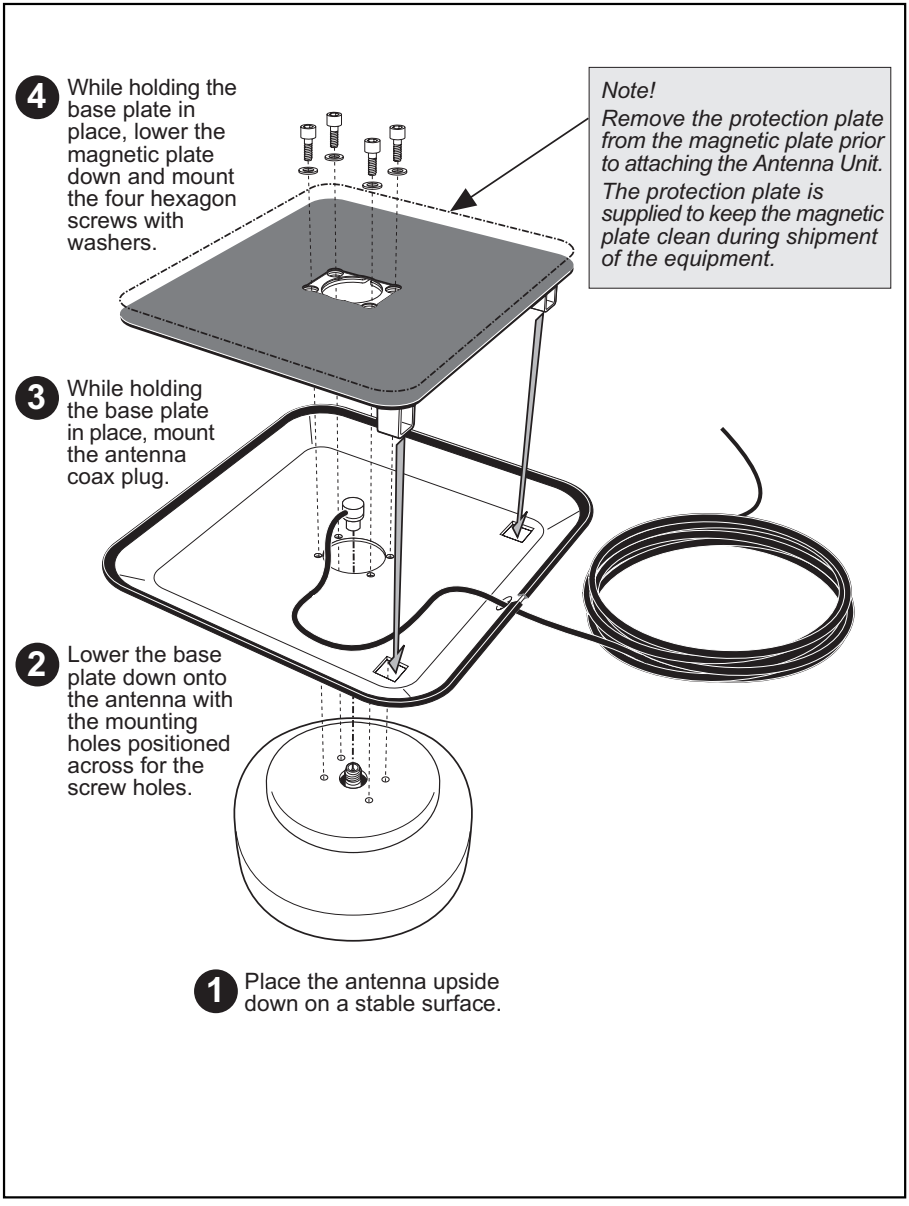
The antenna may be loosened by carefully bending a screwdriver as indicated.

Mounting on load carrier

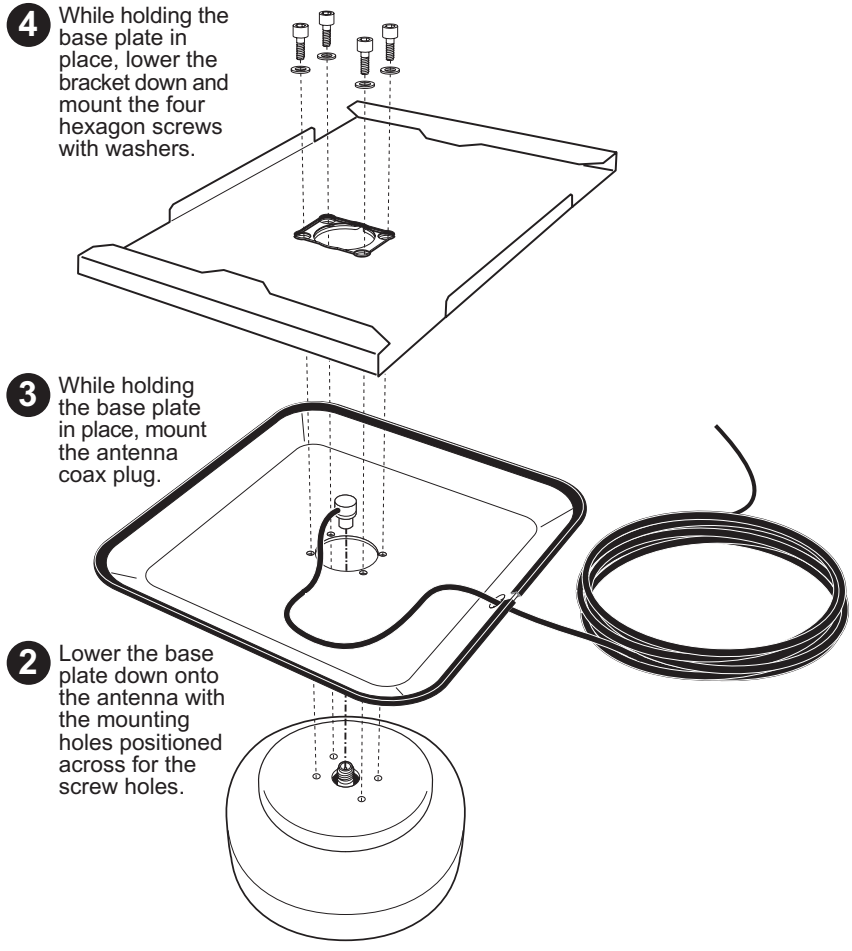
The Antenna Unit may also be attached to the roof using load carrier as indicated. See "Assembling the Antenna Unit for load carrier mount".


Antenna Unit mounted on load carrier
Antenna Unit attached with magnetic plate
Power cable with 15A fuse
Antenna Power Supply
Simrad MS50
Antenna coax cable

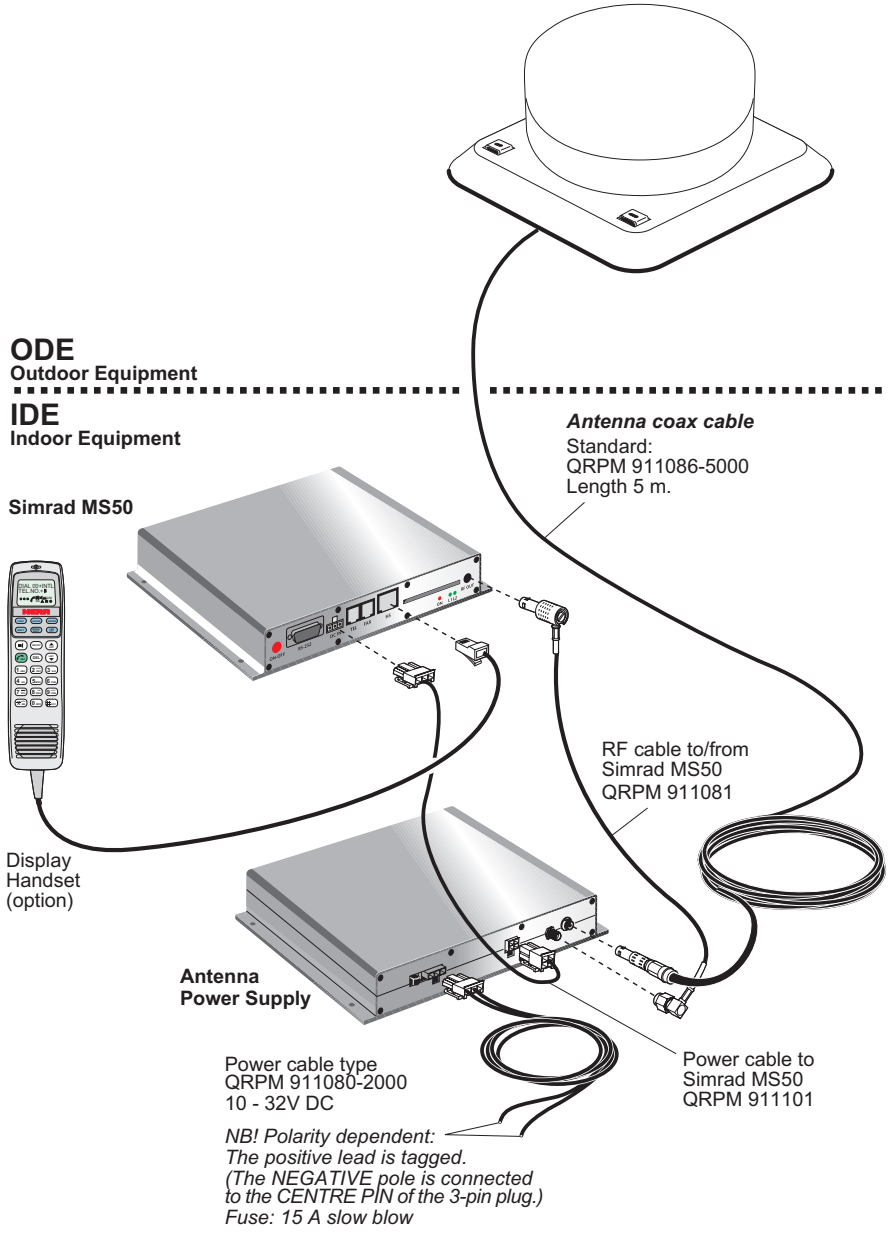
Assembling the Antenna Unit for magnetic mount


4 While holding the base plate in place, lower the magnetic plate down and mount the four hexagon screws with washers.
Note!
Remove the protection plate from the magnetic plate prior to attaching the Antenna Unit.
The protection plate is supplied to keep the magnetic plate clean during shipment of the equipment.
3 While holding the base plate in place, mount the antenna coax plug.
2 Lower the base plate down onto the antenna with the mounting holes positioned across for the screw holes.
1 Place the antenna upside down on a stable surface.

Assembling the Antenna Unit for load carrier mount


4 While holding the base plate in place, lower the bracket down and mount the four hexagon screws with washers.
3 While holding the base plate in place, mount the antenna coax plug.
2 Lower the base plate down onto the antenna with the mounting holes positioned across for the screw holes.
1 Place the antenna upside down on a stable surface.

Connecting up

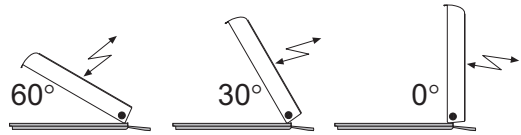


Satellite search

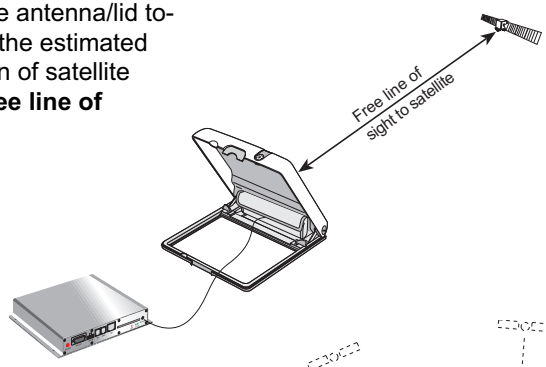
Before mounting the Portable antenna, look up the relative position of the satellite, *see coverage map in chapter 1. Introduction.*

The antenna must be pointed at the satellite with free line of sight for optimum receiving and transmitting conditions. The beam is perpendicular to the antenna.

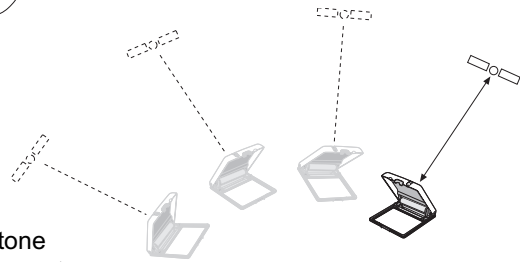
To find the correct vertical angle to the satellite, try with the antenna adjusted to 60°, 30° or 0° as indicated.



Aim the antenna/lid towards the estimated position of satellite with **free line of sight**.



Or make a slow scan across the hemisphere.

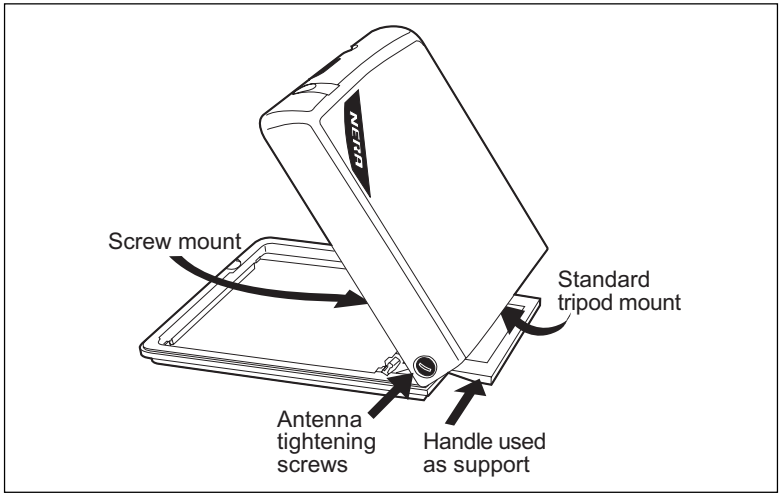


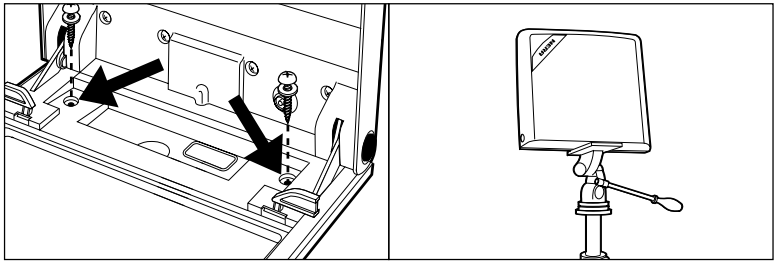
When receiving a satellite signal, a short tone will sound. If it is an Inmarsat satellite, a continuous tone will sound with varying frequency.

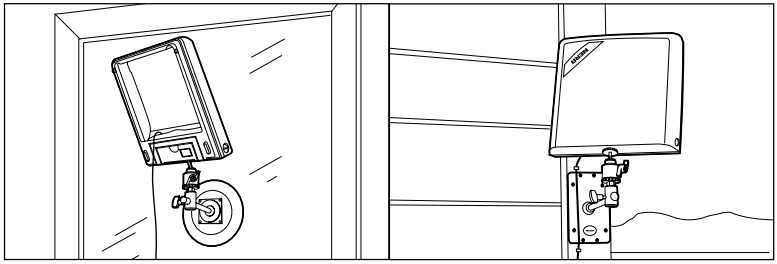
When closing in on a satellite, turning the antenna/lid horizontally and adjusting its vertical angle, the tone should increase in frequency.

Installation

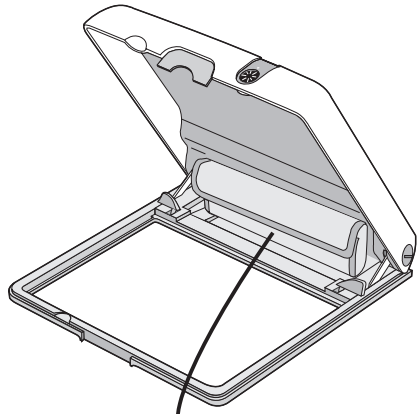
The Portable Antenna Unit can be mounted in several ways. *See examples below.*







Connecting up



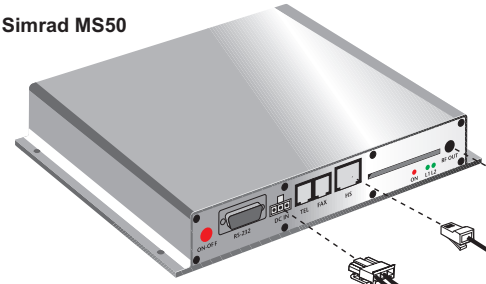
ODE
Outdoor Equipment

IDE
Indoor Equipment

Antenna coax cable
Standard:
type GO2232D
Length 5 m.

QRPM 911061-3000

Simrad MS50



Display
Handset
(option)

Power cable type
QRPM 911080-2000
10 - 32V DC

NB! Polarity dependent:
The positive lead is tagged.
(The NEGATIVE pole is connected to the CENTRE PIN of the 3-pin plug.)
Fuse: 8 A slow blow

Appendix B – Mounting of *Provident Antenna*

Satellite search

Before mounting the Provident Antenna, look up the relative position of the satellite, *see coverage map in chapter 1. Introduction.*

The antenna must be pointed at the satellite with free line of sight for optimum receiving and transmitting conditions. The beam is perpendicular to the antenna.

When during adjustment of the antenna a satellite signal is received, a short tone will sound. If it is an Inmarsat satellite, a continuous tone will sound with varying frequency. When closing in on a satellite, turning the antenna horizontally and adjusting its vertical angle, the tone should increase in frequency.
*See "**Mounting of Portable Antenna**".*

Coax cable

A 10 metre coaxial cable type RG-223 (QRPM 911091-10000) is supplied as standard.

*For greater lengths, see "**Optional antenna cable**".*
A bracket is available with N-connector receptacle for connection of extended antenna cable*, see "**Optional bracket**".*

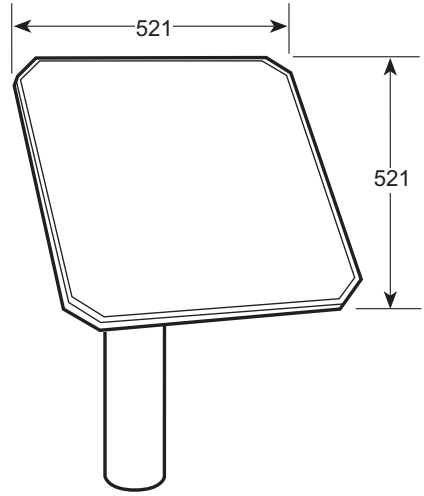
Source of energy

The equipment operates from 10 to 32 Volts DC from any 12V or 24V battery, using the 2 m DC power cable, QRPM 911080-2000. The positive lead of the power cable is tagged.

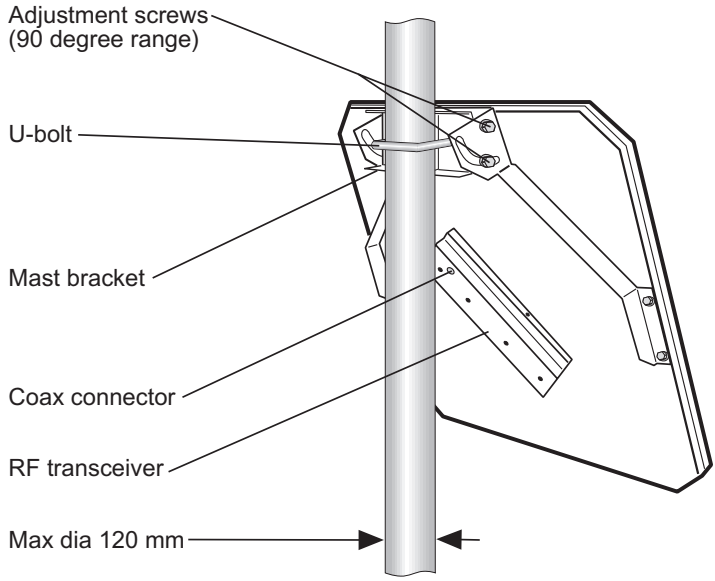
Outline dimensions

Antenna Unit
QUFC 911906

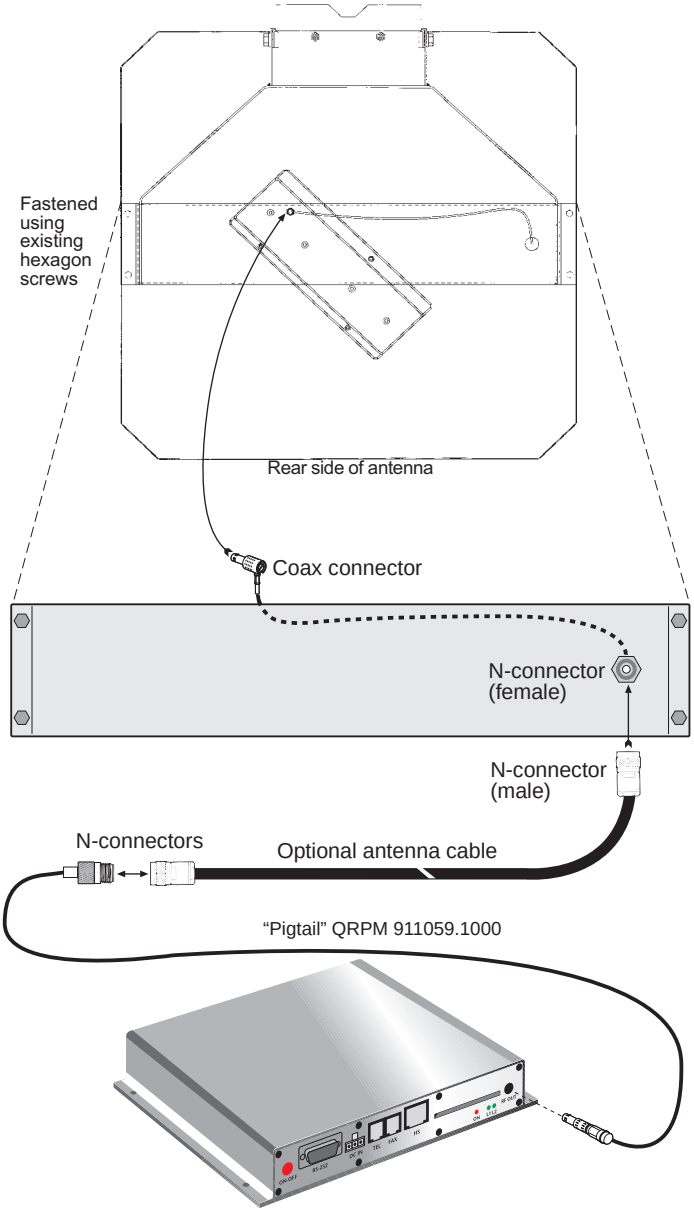
Weight: 3.0 kg
(antenna only)



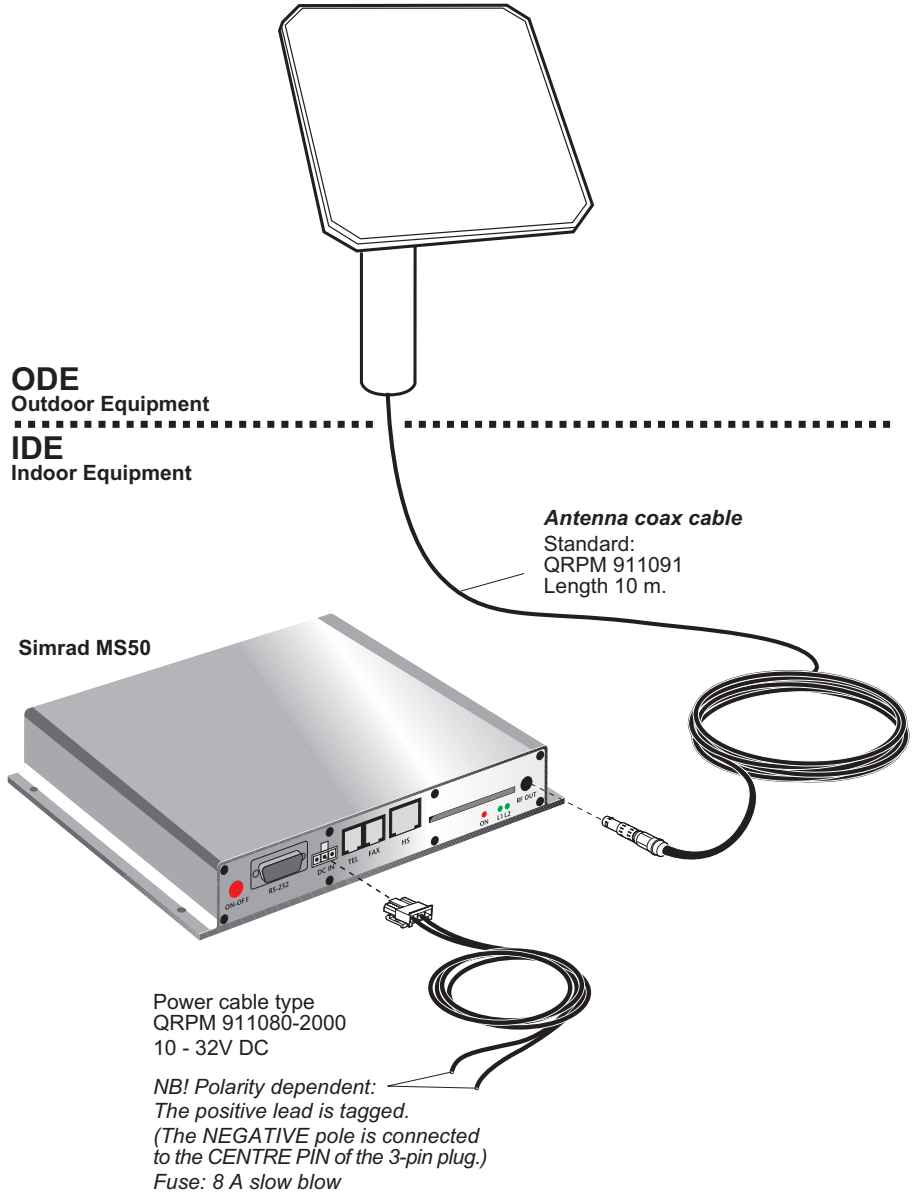
Mounting the Antenna Unit



Optional bracket



Connecting up



Appendix B – Optional antenna cable

General

Double screen 50 Ω coaxial cable must be used for connection between Simrad MS50 and the various Antenna Units.

The coax cable should be secured by laying the cable in a tube and/or by fastening the cable to avoid damage.

A "pigtail" is normally required for connection to the TPU.

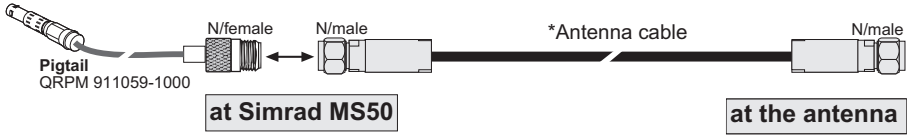
The maximum length of the coax cable is limited by the DC and RF loss through the cable:

Maximum DC loss: R loop 0.6 ohm

Maximum RF attenuation at 1525-1660 MHz: < 10 dB

The table below lists suitable double screened coax cables:

*Antenna cable	Reference	Diameter	max. length for 10 dB/0.6	Suitable coaxial connectors	
				at Simrad MS50	at the antenna
RG214	MIL-C-17	10.8 mm	25 m	11N-50-7-5 + “pigtail”	11N-50-7-5
S 10172 B-10 (QTZC 502 012	—	12.9 mm	75 m	11N-50-10-4 + “pigtail”	11N-50-10-4
RF 1/2” 50	—	16.0 mm	95 m	11N-50-12-115 + “pigtail”	11N-50-12-115
RF 7/8” 50	—	27.5 mm	172 m	11N-50-23-101 + “pigtail”	11N-50-23-101



Ready-made cables

The following cable extensions are delivered with coax connectors mounted:

10 m cable	QRPM 911091-10000
28 m cable	QRPM 911057-28000
80 m cable	QRPM 911058-80000

General

The **AT** command set allows you to configure the Simrad MS50 ASD function directly from your PC keyboard. The AT characters are a prefix to the commands you issue to the Simrad MS50's ASD service. *Most communication applications do not require knowledge of AT commands.*

Every time you type AT, you are essentially asking for the Simrad MS50 ASD's **AT**tention. For instance, if you want to answer an incoming data call, you would type ATA to answer: A T A ↵ R

When a value associated with a command is not entered, it is assumed to be 0, f.ex.: A T & D equals A T & D 0.

Hanging up – escape sequence

Once the the Simrad MS50 ASD is online to another system, the only command it recognises is an **escape code** that contains three typed pluses, (+) which forces the Simrad MS50 ASD back to **command mode**.

The following should be done, when issuing the escape command:

- Wait one second after sending the last item of data.
- Type + + + with less than one second between the characters.
- Wait one second, an "OK" response should appear.

Do not type the AT prefix or Carriage Return. The guard time of one second before and after the code prevents the Simrad MS50 ASD from misinterpreting the occurrence of +++ in the transmitted data stream.

If necessary, the character used in the escape code or the duration of the guard time can be changed by altering Register S2 or S12, *see **S-register commands**.*

- In response to + + +, the Simrad MS50 ASD returns to command mode.
- To hang up, key A T H ↵ R
- To return to online mode, key A T O ↵ R

Operating modes

The Simrad MS50 ASD function may operate in three modes:

- ***Command mode***
  The Simrad MS50 ASD responds to AT commands. No remote communication occurs.
- ***Online command mode***
  A data call is taking place and an escape sequence has been initiated, after which the Simrad MS50 ASD will respond to **AT** commands during the call.
- ***Online data mode***
  Once the Simrad MS50 ASD is connected up, anything arriving from the PC is interpreted as data and sent to the remote end and vice versa.

Basic AT commands

*Note! AT commands may be entered in **either** upper or lower case (not mixed).*

A T A ↵ R

instructs the Simrad MS50 ASD to connect the line and start the answer sequence of the incoming call. Used when not configured for auto answer.

A T D 0 0 4 7 6 7 2 4 4 7 0 0 ↵ R

*instructs the Simrad MS50 ASD to dial the number **00 47 67 24 47 00** via the default Net service provider.*

A T D 4 * 0 0 4 7 6 7 2 4 4 7 0 0 ↵ R

*instructs the Simrad MS50 ASD to dial the number **00 47 67 24 47 00** via the selected Net service provider, e.g. Telenor (Norwegian Telecom, code no.4).*

A T D 2 3 1 1 ↵ R *dials the telephone number stored under short number 11.*

A T E **[n]** ↵ R

sets local echo of keyboard commands on/off:

A T E 0 ↵ R turns local echo OFF.

Default A T E 1 ↵ R turns local echo **ON**.

A T H ↵ R

hook control:

A T H ↵ R sets the Simrad MS50 ASD ON-hook when in Online Data Mode. Disconnects the line and terminates the call.

A T O ↵ R

returns to Online Data Mode when in Online Command Mode during a data call.

A T Q **[n]** ↵ R

sets responses sent by the Simrad MS50 ASD:

Default A T Q 0 ↵ R : the Simrad MS50 ASD **returns** responses like OK or ERROR.

A T Q 1 ↵ R : the Simrad MS50 ASD does not return responses.

A T S *sets and displays S register values. See "**S-Register Commands**".*

A T V **[n]** ↵ R

sets the Simrad MS50 ASD response format to words or numbers:

A T V 0 ↵ R selects **numeric** response.

Default A T V 1 ↵ R selects **verbal** response.

A T X **[n]** ↵ R

selects CONNECT result code format (dial tone detection – busy detection):

A T X 0 ↵ R

basic message set: OK, CONNECT, RING, NO CARRIER, ERROR.

A T X 1 ↵ R

basic message set extended with CONNECT xxxx-yyyy.

A T X 2 ↵ R

basic message set extended with NO DIALTONE.

A T X 3 ↵ R

basic message set extended with BUSY.

Default A T X 4 ↵ R

basic message set extended with all of the above.

A T Z ↵ R

resets the Simrad MS50 ASD configuration to last saved command. Also clears the call if used when in Online Command Mode.

A /

repeats last command.
Re-executes the last AT command string issued to the Simrad MS50 ASD, including redialing a telephone number.

Extended AT commands

AT & C **[n]** ↵ R

determines the Data Carrier Detect (DCD) behaviour:

AT & C 0 ↵ R sets DCD always ON.

Default AT & C 1 ↵ R sets DCD, only when connected.

AT & D **[n]** ↵ R

selects the Data Terminal Ready (DTR) behaviour:

AT & D 0 ↵ R the Simrad MS50 ASD ignores DTR.

AT & D 1 ↵ R the Simrad MS50 ASD enters Online Command Mode when DTR goes inactive.

Default AT & D 2 ↵ R the Simrad MS50 ASD **clears call** when DTR goes inactive.

AT & F ↵ R

*resets the Simrad MS50 ASD to factory **default**. The factory default is not saved as with the AT&W command, so ATZ revokes to last saved values.*

AT & S **[n]** ↵ R

selects the Data Set Ready (DSR) behaviour:

Default AT & S 0 ↵ R sets DSR permanently ON.

AT & S 1 ↵ R sets DSR ON when satellite link is established.

AT & V ↵ R

displays stored configuration profile.

AT & W ↵ R

saves active configuration profile.
(May be recalled using AT Z ↵ R).

Extended AT+I, +G and +W commands

The extended AT+I, AT+G and AT+W commands are non-standard features some of which are designed specially for the Inmarsat Mini-M system.

AT +GCAP ↵R

displays capabilities supported by Simrad MS50 terminals.

AT +GMI ↵R

displays manufacturer identification.

AT +GMM ↵R

displays equipment identification.

AT +GMR ↵R

displays software revision.

AT +ICF =[**n**<format>] [**,m**<parity>] ↵R

specifies the local serial port start-stop (asynchronous) character framing between the PC and the Simrad MS50.

AT +ICF ? ↵R

displays current settings.

AT +ICF =? ↵R

displays available settings.

Format reference number **n** :

1 = 8 data bits, 2 stop bits

Default **3** = 8 data bits, 1 stop bit

4 = 7 data bits, 2 stop bits

5 = 7 data bits, 1 parity bit, 1 stop bit

Parity reference number **m** :

0 = odd

1 = even

2 = mark

Default **3** = space

Example:

AT +ICF =3,3 ↵R

specifies a data format of 8 data bits,1 stop bit and space parity.

AT +IFC =[**n**<WP-to-PC>] [,**m**<PC-to-WP>] ; ↵R

specifies the local flow control between the PC and the Simrad MS50.

AT +IFC ? ↵R

displays current settings.

AT +IFC =? ↵R

displays available settings.

Simrad MS50 - to - PC, reference number **n** :

0 = no flow control

1 = XON/XOFF (software flow control stripped of control characters.)

Default **2** = RTS (hardware flow control)

3 = XON/XOFF (software flow control with pass-through of control characters.)

PC - to - Simrad MS50, reference number **m** :

0 = no flow control

1 = XON/XOFF (software flow control)

Default **2** = CTS (hardware flow control)

AT +IPR =[**r**(PC-to-WP rate)] ↵R

specifies the data rate at which PC - Simrad MS50 interface accepts commands.

AT +IPR ? ↵R

displays current settings.

AT +IPR =? ↵R

displays available settings.

Selectable data rates, **r** :

1200 bps
2400 bps
4800 bps
9600 bps
19200 bps
38400 bps

Example:

AT +IPR =9600 ↵R

specifies a data rate of 9600 bps between the PC and the Simrad MS50 telephone unit.

AT +W ↵R

Indicates which PCCA standard the Simrad MS50 ASD complies with.

AT +WKSIZE =**[n]** ↵R

sets the maximum ARQ window size for subsequent data calls using ARQ mode. The ARQ window determines the size of the buffer that keeps in memory data not yet acknowledged by the other end.

AT +WKSIZE ? ↵R

displays current settings.

AT +WKSIZE =? ↵R

displays available settings.

Valid value of **n** = 1 - 63

Default **Simrad MS50 : n** = 15

AT +WINMARSAT ↵R

lists Inmarsat specific functions supported by the Simrad MS50 ASD.

AT +WLES =**[n]** ↵R

selects the Net service provider for the next outgoing call.

The parameter **nnn** specifies the Net service provider Access Code. Three digits must be keyed in. If omitted, the default Net service provider set from the Simrad MS50 is selected.

Range = 0 - 255

nnn = 000, default Net service provider.

AT +WNERAHSHAKE =**[n]** ↵R

selects handshake setup.

n = 1 fills the Simrad MS50 buffer before handshaking with the Net service provider.

Default **n** = 0 routes handshake transitions from the PC directly to the Net service provider. Minimizes transmission delays when handshake is used seldom.

AT +WRATE =**[<sat_rate>]** [,**<ter_rate>**] ↵R

sets the wanted satellite data rate, and the terrestrial data rate used for outgoing data calls.

AT +WRATE ? ↵R

displays selected rates.

AT +WRATE =? ↵R

displays available rates.

Sat_rate, i.e. requested data rate to use over satellite channel, for Simrad MS50 permanently set to:

2400 bps

Ter_rate, i.e. data rate to use on terrestrial modem:

1200 bps
2400 bps
4800 bps
Default 9600 bps
14400 bps

Example:

AT +WRATE=2400,2400 ↵R

sets both the satellite rate and the terrestrial modem rate to 2400 bps.

AT +WRTL =[**<low>**] [,**<high>**] ↵R *sets the lower and upper threshold level in bytes of the buffer used in the Net service provider-to-Simrad MS50 direction (**Simrad MS50 receive buffer**).*

AT +WRTL ? ↵R
displays selected threshold levels.

AT WRTL =? ↵R
displays available threshold levels.

The **low** parameter specifies the lower threshold at which point the Simrad MS50 ASD should issue an RR (Receiver Ready) packet signalling that it is ready to receive data from Net service provider:

Valid value: 0-511

Default value: 120

The **high** parameter specifies the upper threshold at which point the Simrad MS50 ASD should issue an RNR (Receiver Not Ready) packet signalling that it is not ready to receive any more data from Net service provider:

Valid value: 1-512

Default value: 240

Note! The high value must be larger than the low value. When the high value is omitted, it becomes low value + 120.

AT +WS45 =**[n]** ↵R

sets the requested satellite and terrestrial error correction scheme for data calls.

AT +WS45 ? ↵R

displays current setting.

AT WS45 =? ↵R

displays available setting.

Parameter reference number

n *:*	*Sat. err.corr.*	*Terr. err.corr.*	*End-to-end*
0	non-ARQ	non-V.42	NARQ
Default **1**	ARQ	V.42	ARQ
200	non-ARQ	V.42	NARQ
201	ARQ	non-V.42	NARQ

AT +WS46 ? ↵R

shows that the Inmarsat Mini-M ASD standard is to be used for data communication. This is fixed and may not be changed.

AT +WTNID =**[<nnn>]** ↵R *sets the terrestrial network for the next outgoing data call.*

AT +WTNID ? ↵R

displays selected TNID.

AT +WTNID =? ↵R

displays available TNIDs.

The parameter **nnn** specifies the terrestrial network ID. If omitted, it is set to **000**.

Range = 0 - 255

nnn = 000, terrestrial network unspecified.

AT +WTTL =**[<low>] [,<high>]** R *sets the lower and upper threshold level in bytes of the buffer used in the SIMRAD MS50-to-Net service provider direction (**Simrad MS50 transmit buffer**).*

AT +WTTL ? R
displays selected threshold levels.

AT WTTL =? R
displays available threshold levels.

The **low** parameter specifies the lower threshold at which point the Simrad MS50 ASD should issue an XON, or raise the CTS line signalling that it is ready to receive data from the PC:

Valid value: 0-511

Default value: 120

The **high** parameter specifies the upper threshold at which point the Simrad MS50 ASD should issue an an XOFF, or lower the CTS line signalling that it is not ready to receive data from the PC:

Valid value: 1-512

Default value: 240

Note! The high value must be larger than the low value. When the high value is omitted, it becomes low value + 120.

AT +WXR =**[n]** R

determines the format of a CONNECT response from the Simrad MS50 ASD.

AT +WXR ? R
displays selected format.

AT +WXR =? R
displays available formats.

Format reference number **n** :

0 = CONNECT <*see below** >

1 = +WXSR:<satellite rate>,<ARQ I NARQ>
+WXTR:<terrestrial rate>,<ARQ I NARQ>
+WXKR:<ARQ window size>
CONNECT <PC-WP rate>

Default **2** = CONNECT <*see below** >,<ARQ I NARQ>

3 = CONNECT <ARQ I NARQ>

* *The lowest value of PC-WP rate, satellite rate and terrestrial rate.*

S-Register commands

S-registers are special memory locations in the Simrad MS50 for storing specific configuration and operating parameters.

[A][T] [S][0] [=] **[n]** [↵ R]

specifies automatic answer at the nth ring.
***0=OFF, 1-255=ON**.*

[A][T] [S][0] [=] **<n>** [↵ R]

sets value of register.

[A][T] [S][0] [?] [↵ R]

displays current value of register.

Default [A][T] [S][0] [=][0] [↵ R] turns automatic answer **OFF**.

[A][T] [S][0] [=][1] [↵ R] answers after 1 ring.

*the Simrad MS50 ASD will terminate incoming calls after **95 secs**.*

[A][T] [S][2] [=] **[n]** [↵ R]

stores the ASCII decimal code for the escape character. Authorized codes within: 0 to 255.
***n≥128** disables the escape sequence.*

[A][T] [S][2] [=] **<n>** [↵ R]

sets value of register.

[A][T] [S][2] [?] [↵ R]

displays current value of register.

Default [A][T] [S][2] [=][4][3] [↵ R] sets the ESCAPE code to **43** ([+]-key).

[A][T] [S][3] [=] **[n]** [↵ R]

stores the ASCII decimal code for the carriage return character. Authorized codes within: 0 to 127.

[A][T] [S][3] [=] **<n>** [↵ R]

sets value of register.

[A][T] [S][3] [?] [↵ R]

displays current value of register.

Default [A][T] [S][3] [=][1][3] [↵ R] sets the CARRIAGE RETURN code to **13** ([↵ R] -key).

[A][T] [S][4] [=]**[n]** [↵ R]

stores the ASCII decimal code for the line feed character. Authorized codes: 0 to 127.

[A][T] [S][4] [=]**<n>** [↵ R]

sets value of register.

[A][T] [S][4] [?] [↵ R]

displays current value of register.

Default [A][T] [S][4] [=][1][0] [↵ R] sets the LINE FEED code to **10**.

[A][T] [S][5] [=]**[n]** [↵ R]

stores the ASCII decimal code for the editing character. Authorized codes: 0 to 127.

[A][T] [S][5] [=]**<n>** [↵ R]

sets value of register.

[A][T] [S][5] [?] [↵ R]

displays current value of register.

Default [A][T] [S][5] [=][8] [↵ R] sets the BACK SPACE code to **8**.

[A][T] [S][2][5] [=]**[n]** [↵ R]

sets delay before examining DTR (108/2) after dialing and when online with a Simrad MS50-to-Net call.

Range: 0-255 hundredths of a second.

[A][T] [S][2][5] [=]**<n>** [↵ R]

sets delay value.

[A][T] [S][2][5] [?] [;] [↵ R]

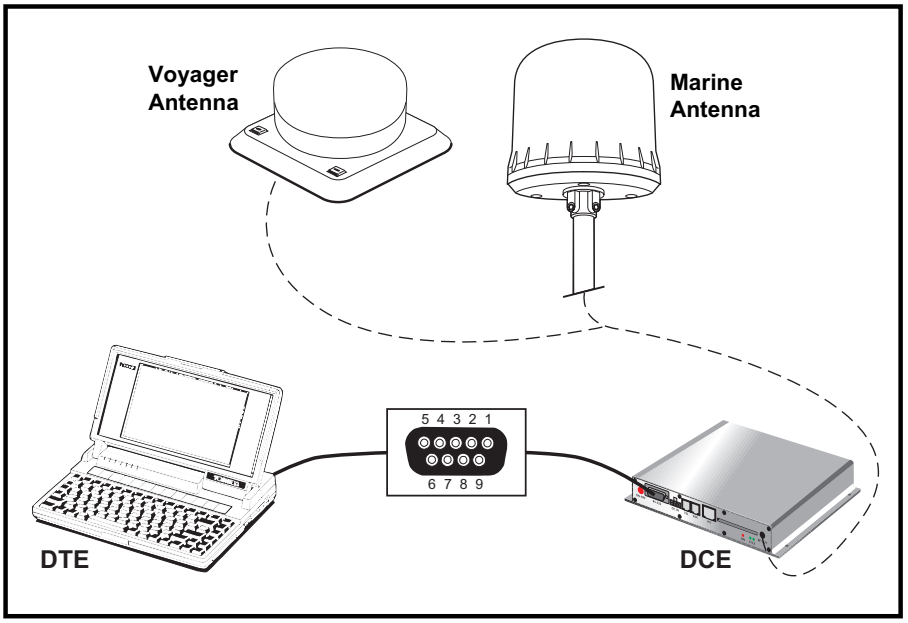
displays current delay value.

Default [A][T] [S][2][5] [=][5] [↵ R] sets delay to **5** (corresponding to 50 milliseconds).

Pin assignments

Pin number	*Mne-monic*	*Circuit*	*DIN*	*CCITT circuit*	*Signal source*	*Description*
1	CD			109	DCE	Carrier detect
2	RXD	BB	D1	104	DTE	Received Data
3	TXD	BA	D2	103	DCE	Transmitted Data
4	DTR			108	DTE	Data terminal ready
5	GND			102		Signal ground
6	DSR			107	DCE	Data set ready
7	RTS	CA	S2	105	DTE	Request To Send
8	CTS	CB	M2	106	DCE	Clear To Send
9	RI			125	DCE	Ring indicator

Signal source DTE means the signal goes from the PC to the Simrad MS50.
Signal source DCE means the signal goes from the Simrad MS50 to the PC.



Signal descriptions

102 Signal Ground
Digital ground, return line.

103 Send Data
Data transmitted from DTE (PC) to DCE (Simrad MS50).

104 Receive data
Data Received from DCE (Simrad MS50) to DTE (PC).

105 Request To Send
OFF requests DCE (Simrad MS50) to suspend transmission to DTE (PC).
ON requests DCE (Simrad MS50) to resume transmission to DTE (PC).

106 Clear to send
OFF indicates that DCE (Simrad MS50) cannot accept data from DTE (PC).
ON indicates that DCE (Simrad MS50) is prepared to accept data from DTE (PC).

107 Data Set Ready
Signal from Simrad MS50 that when ON indicates that a data call setup is in progress.

108 Data Terminal Ready
Signal from PC. This signal is used in the Hotline mode and indicate when going from OFF to ON that the PC wants to make a data call. The PC clears the call by setting the signal from ON to OFF.

109 Receive Signal Indicator
Signal from Simrad MS50 that when ON indicates that connection is established and received data will be delivered on circuit 104, Received Data.

125 Ring Indicator
Signal from Simrad MS50. This signal is used in the Auto answer OFF mode and when ON indicates that an incoming call is in progress. The signal will go OFF when the call is answered by the PC by turning circuit 108 Data Terminal Ready ON.

General

Simrad MS50 can be programmed to allow operation of encrypted speech through the TEL port and the FAX port when this is configured for voice service.

The STU IIB/III is *enabled as default* on ports configured for voice service.

STU enabling/disabling

1 Select the function **Menu** and scroll down to **Advanced functions**:

2 Select **Selct** or press **right arrow** and scroll down to **Configuration**:

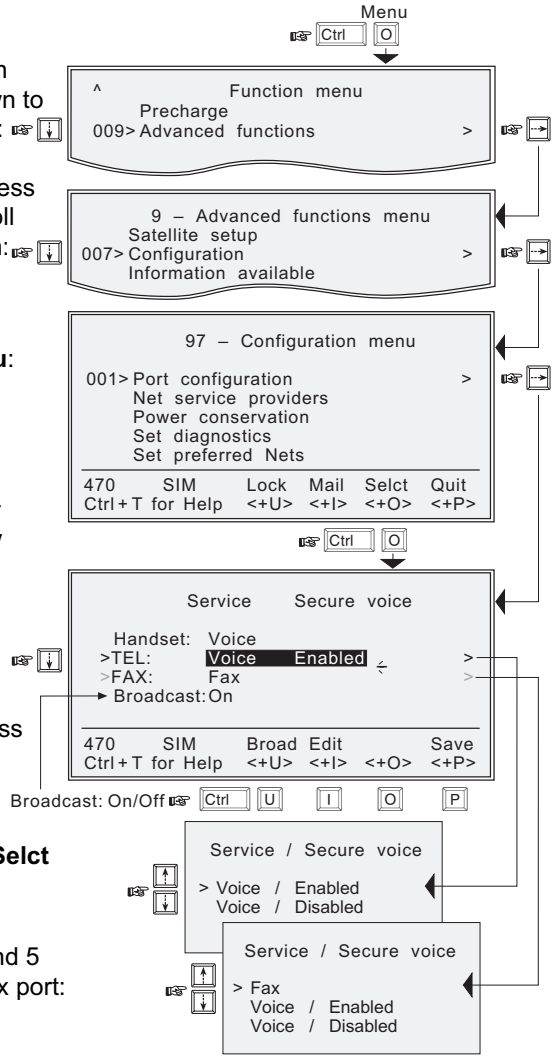
3 **Selct** or **right arrow** selects the **Configuration menu**:

4 Selecting **Selct** or pressing **right arrow** again displays which ports are enabled/ disabled for use with secure voice:

5 Select **Edit** or press **right arrow** for enabling/disabling of secure voice.

Scroll up/down and **Selct** at wanted mode:

6 Repeat steps 4 and 5 to select mode for fax port:



Appendix D – Aero functions (option)

Magnetometer calibration

1 Select the function **Menu** and scroll down to **Advanced functions**:

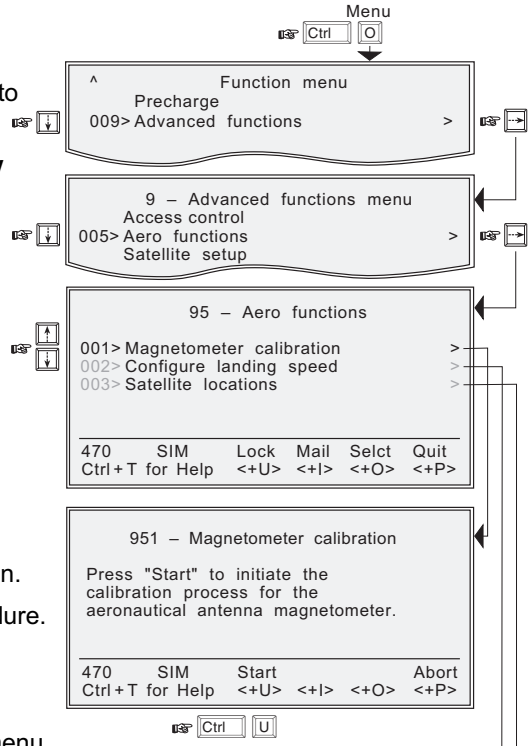
2 **Selct** or **right arrow** opens the **Advanced functions menu**.

3 Scroll down to **Aero functions** and use **Selct** or **right arrow** to open the **Aero functions** window:

4 Use **Selct** or **right arrow** to open the **Magnetometer calibration** window:

Start initiates calibration.

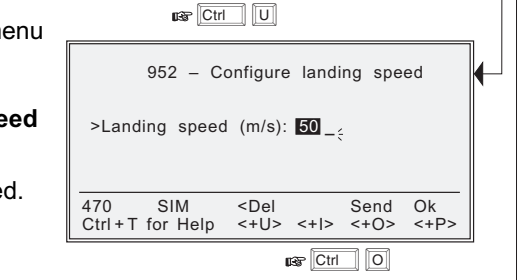
Abort stops the procedure.



Configure landing speed

5 Scroll down in the menu and use **Selct** or **right arrow** to open the **Configure landing speed** window:

Key in anticipated speed.

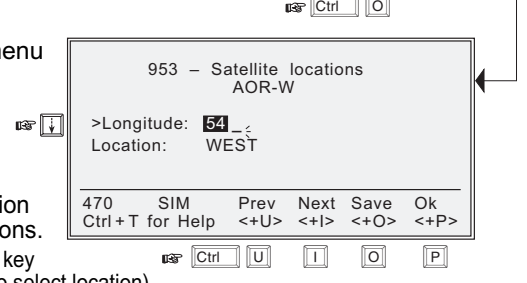


Satellite locations

6 Scroll down in the menu and use **Selct** or **right arrow** to open the **Satellite locations** window:

Prev/Next lists the position of available satellite regions.

(For possible new satellites, key in position and scroll down to select location)



AOR-E Atlantic Ocean Region East.

AOR-W Atlantic Ocean Region West.

ARQ automatic repeat request, protocol for error detection and automatic retransmission of defective blocks of data.

ASD asynchronous data transmission

ASD function/service the built-in capability of the Simrad MS50 for asynchronous data transmission.

AT command used to control modem functions from the PC keyboard (ATtention).

AT modem the built-in modem of the Simrad MS50 that performs the modulation and demodulation required for data communication.

Azimuth horizontal direction angle between north and, e.g. the direction to the satellite.

Bit rate the number of bits transmitted per second (bps).

BPS Bits Per Second

CHV2 higher access level on the SIM card, corresponding to Simrad MS50 "owner" level.

DC Direct Current

DCE data circuit terminal equipment

Deg degrees

DTE data terminal equipment

DTMF Dual-Tone Multifrequency Dialing, pulsing in which each digit is represented by a specific pair of audio frequencies (one tone below 1000 Hz and another above 1200 Hz).

Elevation vertical angle to the satellite, e.g. the height of the satellite above the horizon as seen from the ship.

FWD forward

IMN Inmarsat Mobile Number, a unique 9-digit number which identifies each port of the Simrad MS50.

Inmarsat International Maritime Satellite Organisation.

IOR Indian Ocean Region.

ISN Inmarsat Serial Number, individual number assigned to each Simrad MS50 terminal.

ISP Inmarsat Service Provider

KBPS KiloBits Per Second

LES Land Earth Station, a station that interconnects fixed telecommunications networks with the Inmarsat system; may also be called a CES (Coast Earth Station) or a GES (Ground Earth Station).

MES Mobile Earth Station, a user terminal for an Inmarsat system; the Simrad MS50 terminal is an MES for the Inmarsat Mini-M system; MES may also be called SES (Ship Earth Station) or, if on aircraft, AES (Aeronautical Earth Station).

NCS Network Coordination Station, station that supervises all messages and signals sent in the Inmarsat system; one in each Ocean Region.

NIMS Nera Internet Messages Service, allows a message of maximum 1024 characters to be sent to the Simrad MS50 from a website, or to an e-mail address from the Simrad MS50.

Non-ARQ non-automatic repeat request, see ARQ

Ocean Region the coverage area of an Inmarsat satellite within which the Simrad MS50 may communicate.

PABX private automatic branch exchange

PCCA Portable Computer & Communications Association Modem Standards Committee.

PIN Personal Identification Number

PUK Personal Unblocking Key, code that allows unblocking a SIM card.

RF Radio Frequency

RNR Receiver Not Ready data signal

RR Receiver Ready data signal

S/A operator StandAlone operator who maintains connectivity in the event of Network Coordinating Station failure.

SIM Subscriber Identity Module

SMS Smart Message System

Spot Beam an Ocean Region is divided into sub-regions, each "spotlighted" by a beam from the region satellite.

Terrestrial Network a fixed telecommunications network, such as a telephone network or a data network, which connects to the Inmarsat system at an LES/NCS.

TNID Terrestrial Network Identification Digits

UTC Coordinated Universal Time, referenced to Greenwich Mean Time (GMT)

1. *The power indicator does not light up:*

- Is the power turned ON?
- Is the power properly connected?

2. *The access PIN code appears to be invalid:*

- The code may have been changed. The access Phone PIN is reset to default by logging in as owner:

  ✱ + owner's password

  Note! The SIM card can only be unblocked using a PUK code (Pin Unblock Key). Contact the agent.

3. *The Simrad MS50 cannot find the satellite:*

- Check that no obstacles block the free sight to the satellite. The signal strength indicator should preferably exceed 415.
- Check that the coax cable is connected properly.
- If accessible, try another antenna unit.
- The warning "Not available" appears in the display. To restore communication with the satellite, s*ee chapter 4. Data Service:* ***Advanced functions: Information available: Oscillator compensation***.

4. *The Simrad MS50 functions abnormally:*

- Turn off power and disconnect power cable/battery.
- Connect power cable/battery, and switch on again.

5. *Unsuccessful call attempt:*

- The called party is busy ("Subscriber busy" appears on the display).
- Call the Net service provider. If unsuccessful, wait for some time and try again.
- The Simrad MS50 is not properly commissioned. Check with the Net service provider.

6. Problems with telefax:

- Remember to press "#" as last digit before starting transmission.
- Verify that the service is commissioned, *see step 5.*
- Connect an external standard telephone to the FAX port and verify that you have a dial tone.
- Be aware of system transmission delays. The OFF-HOOK time should therefore be as long as possible (e.g. 2 minutes). When the fax machine is called, ringing time should be set to minimum (e.g. immediate answer).
- Try a different fax machine.
- Check that the port is configured for telefax service (and not voice), s*ee chapter 4. Data Service:* ***Advanced functions: Configuration***.

7. Problems with data communication:

- Verify correct bit rate on PC and telephone unit, *see chapter 4. Data Service:* ***Data/printer port setup***.
- Try to connect to the server through a terminal emulator.
- Check the PC program settings, and if necessary extend the timeout intervals.
- Contact the PC applications vendor for help.

A

Access
- code *4.40*
- control *4.46*, *4.47*
- level *4.10*, *4.17*

Advanced functions *4.10*, *4.39*
Aero functions *D-2*
- configure landing speed *D-2*
- magnetometer calibration *D-2*
- satellite locations *D-2*

Allowed SIM *4.46*
Antenna Unit *1.1*
- mounting *B-8*, *B-11*, *B-12*, *B-13*, *B-15*

Apnd *4.12*
AT commands *C-1*
AT modem *4.21*
Azimuth *E-1*

B

Baud rate *4.2*, *4.20*
Bit rate *4.1*, *4.20*
Book *4.10*
Buying more time *4.33*

C

Call *4.12*, *4.13*
- country codes *A-2*
- data *C-1*
- explanation *A-1*
- fax *3.2*
- from Display Handset *2.1*
- from telephone *2.10*
- from/to mobiles *1.8*
- service address codes *A-5*
- through selected provider *2.5*, *2.10*
- to Simrad MS50 *2.11*

Calls
- service *2.11*

Charge tone *4.55*
CHV2 *4.10*, *4.17*, *E-1*
Coax cable *1.1*, *B-18*
Compass safe distance *B-4*
Configuration *4.39*, *4.50*
Connecting up
- optional equipment *B-22*

Country codes *1.9*, *A-1*

D

Data
- bits *4.20*
- networks *1.1*

DATA connector *4.1*
Data/printer port setup *4.10*, *4.20*
Date and time *4.23*
Default Net service provider *2.7*, *4.10*
Diagnostics *4.52*
Dimensions *B-19*
- Marine Antenna *B-5*
- Simrad MS50 *B-1*
- Voyager Antenna *B-10*

Display and keys *2.1*
Display Handset
- light on/off *2.3*

DTE interface *C-17*, *C-18*

E

Editing entry in phone book *4.14*
Elevation *E-1*
Eng(lish)-key *4.26*
Equipment *1.1*
Erase *4.12*
Escape key *2.2*

F

Facsimile *1.1*
FAX connector *3.1*
Forward ID *2.9*, *4.56*
Functions *4.5*, *4.10*
- overview *4.11*

FWD *E-1*

G

Geostationary orbit *1.7*

H

Help *4.5*
Hot dial *4.22*

I

Idle mode *2.2*
Illumination
- of display and keys *2.3*

IMN
- Inmarsat Mobile Number *4.56*, *E-1*

IMN numbers *2.8*
In box *4.8*
Information available *4.56*, *4.57*
Inmarsat *E-1*
- Mini-M system *1.6*

Installation *4.1*
- of Marine Antenna *B-4*
- of Portable Antenna *B-15*
- of Provident Antenna *B-18*
- of Simrad MS50 *B-1*
- of Voyager Antenna *B-10*

Interference *B-4*
International
- codes *1.9*, *A-2*
- dial-up telephone *1.1*

Internet message *4.8*
ISN *E-1*

K

Key
- light *2.3*
- lock *4.24*

L

Land Earth Station, LES *E-2*
Language
- reset *4.26*
- setup *4.25*

Last number
- list *1.5*, *4.12*

Last number list *4.12*
Level
- CHV2 *4.17*, *E-1*
- owner *4.19*
- user *4.10*, *4.17*

Light intensity *2.3*
Lock *4.24*
Loudspeaker *2.2*
Lowercase *4.45*, *4.58*

Index

M

Mail *4.8*
  service *1.5*
Mailbox access numbers *4.27*
Marine Antenna *B-4*
Menu *4.10*
MES
  description *E-2*
Mobile Earth Station *E-2*
Mobile-to-LES Call *1.8*
Mounting
  Antenna Unit *B-6*, *B-8*, *B-11*, *B-12*, *B-13*
  Power Supply *B-7*
Mute *4.4*

N

Net service provider *1.5*, *1.8*, *4.16*, *4.49*, *4.51*, *4.53*
Network *1.1*
Network status *4.57*
NIMS
  mail service *1.5*
  receiving *4.8*
  sending *4.6*
Numbers. *See IMN numbers*

O

Ocean Region *4.16*, *4.49*
  codes *1.9*
  current *2.6*
Optional equipment *B-3*
Oscillator compensation *4.57*
Out box *4.6*
Owner
  access *4.10*
  level *4.17*
  level password *4.19*
  setting level *4.19*

P

Paid functions *4.58*
Parity *4.20*
Password *4.18*, *4.19*
PCCA *C-9*, *E-2*
Phone
  name setup *4.58*
  setup *4.10*
Phone book *1.5*, *4.13*, *4.14*
  new entry *4.13*
PIN code *1.5*, *2.3*, *4.17*
Port configuration *4.50*
Portable Antenna *B-15*
Power
  conservation *4.52*
  reduction *4.52*
Precharge *4.32*
  on SIM card *4.38*
Printer *4.20*
Provident Antenna *B-18*

R

Radiation precautions *B-4*
Receiving NIMS message *4.8*
Reply *4.9*
Restricted
  dialing *4.40*
  SIM *4.46*

S

Satellite
  altitude *1.7*
  coverage *1.7*
  geostationary positions *1.7*
  Ocean Region *2.6*, *4.16*
  positions *1.7*
  searching *2.4*
  setup *4.49*
Secure voice *D-1*
Seek *4.10*
Sending NIMS message *4.6*
Service
  address codes *A-5*
  calls *2.11*
Services
  list of *1.9*
Set diagnostics *4.52*
Setting
  date and time *4.23*, *4.24*, *4.27*
  key lock *4.24*
  up *4.3*
Short number *4.13*
SIM
  card *4.40*, *4.53*
  restrictions *4.46*, *4.48*
Simrad MS50 *1.1*, *4.1*
Spot beam, term *E-2*
Stand Alone operator *4.53*, *E-2*
Stop bit *4.20*
STU *D-1*
System
  information *4.52*, *4.56*, *4.57*
  satellites *1.7*

T

Telefax
  service *3.1*
Telephone
  call. *See* Call
  unit *1.1*, *B-1*
Terms
  list of *E-1*
Terrestrial network *4.49*
Text message *1.5*, *4.8*
Time *4.23. See also Date and time*
TNID *E-2*
Traffic log *4.29*
Transceiver *1.1*
Transmission rate
  data *1.5*, *4.1*
  telefax *1.5*, *3.1*
Turning on *2.4*

U

Uppercase *4.45*, *4.58*
User
  access *4.10*
  level *4.17*

V

Version *4.57*
Voyager Antenna *B-10*

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